

*International*



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# INTERNATIONAL

Heavy Duty



Pug Mills

OCTOBER 1917

BULLETIN No. 6

STANDARD CLAY PRODUCTS, LIMITED



International Type 300  
Heavy Duty Pug Mill for  
High Capacity Work

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



A PUG MILL must handle the same quantity of clay as the auger machine it is feeding.

High capacity Auger Machines, such as our types 400, 410 and 420 handle an enormous tonnage of clay in ten hours, running anywhere from 200 to 800 tons.

Type 300 H. D. Pug Mill in 12, 14 and 16 ft. lengths of tub has been especially designed to back up the above auger machines in high capacity work.

A 14 ft. H. D. Pug Mill has on one occasion pugged sufficient material in a proper manner for 253,000 building brick in ten hours.

One of our 14 ft. H. D. Pug Mills has pugged sufficient clay for 50,000,000 brick in one year's time or 150,000 tons of clay.

Its shafts are designed for heavy duty work, the main shaft being hexagonal in form, forged from hammered steel, 5" in diameter.

Its gears are of very ample proportions. Standard construction includes cast steel pinions, with special hard iron gears. Many customers, for heavy duty work, purchase steel cut gears cut from steel blanks.

The hubs are of the interlocking variety, knives being insertable without removing hubs, it being an easy matter to replace knives.

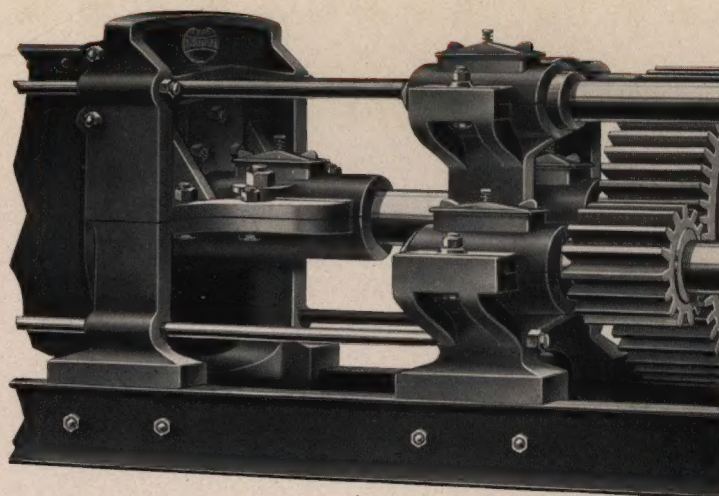
Knives and hubs are made of a special hard iron mixture, although a large number of high capacity manufacturers insist that both knives and hubs be made of cast steel.

An improved type of submerged thrust with large bearing surface has been designed as a special feature of all type 300 mills.

The construction of the mill throughout is extremely heavy duty, and we do not believe that there is a line of pug mills on the market that will equal type 300 Heavy Duty Mills for capacity.

Type 301 Pug Mill, in 12 ft. and 14 ft. lengths, is made for gear end discharge, this mill being of the pulling instead of the pushing type.

All bearings are of heavy duty proportions, and caps covering the journals are machine fitted to their seats, so arranged as to take all shearing strain from the heavy bolts.



SHOWING TYPE 301 PULLING PUG MILL'S  
MASSIVE CONSTRUCTION

## SPECIFICATIONS

12 ft. MILL	14 ft. MILL	16 ft. MILL
Length over all, 21' 5"	Length over all, 23' 5"	Length over all, 25' 5"
Width over all, 5' 8"	Width over all, 5' 8"	Width over all, 5' 8"
Height over all, 5' 1"	Height over all, 5' 1"	Height over all, 5' 1"
Approx. shipping wt. 14,500 lbs.	Approx. shipping wt. 15,500 lbs.	Approx. shipping wt. 16,500 lbs.
Friction clutch pulleys on all mills, 48"x 14"		
R P M, 250 to 300.		

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

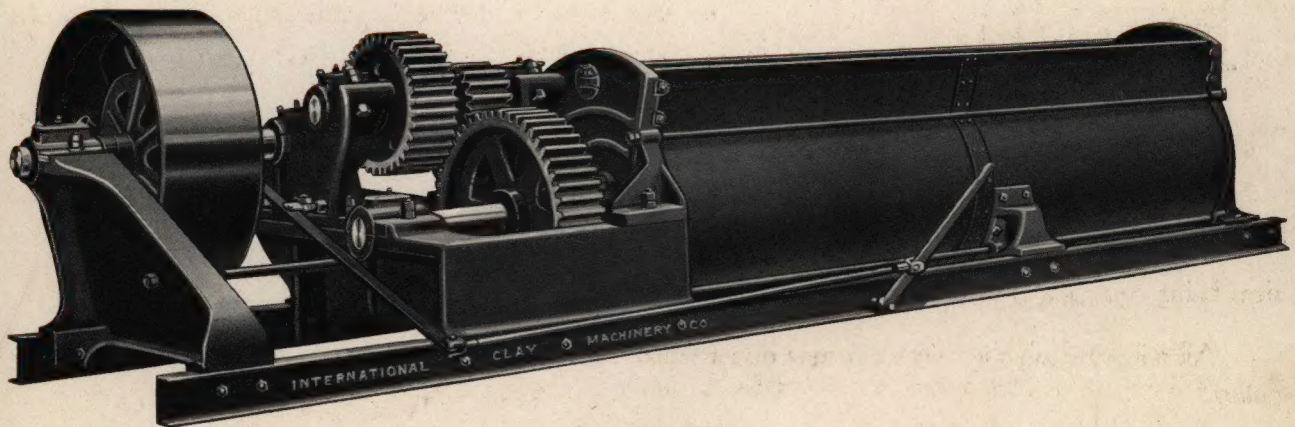
Type 310



Pug Mill

SEPTEMBER 1917

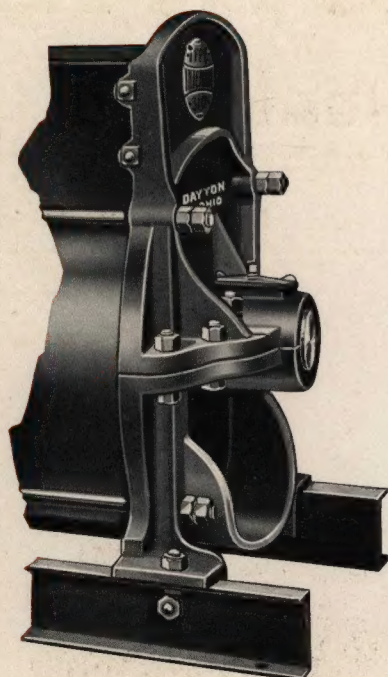
BULLETIN No. 7



International Type 310  
Pug Mill

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





STANDARD DISCHARGE

**M**ANY clay working plants of ordinary and fairly high capacities, need good pugging.

Bearing this in mind, type 310 pug mills have been designed with the idea of furnishing a machine that will give maximum service with the least amount of repairs, when operated 300 working days in the year.

The frames of these mills are of the box type, very strong, and capable of resisting the strains of high capacity work.

The gears are of wide face and the shafts are of ample dimensions, main shaft being hexagon hammered steel.

The thrust on the main shaft is of the marine type, located at the front of the box frame, being a departure from ordinary construction.

The knives are readily replaceable being attached to the main shaft by split hubs.

The entire mill is constructed in a very workmanlike manner and for all ordinary clayworking operations, has proven most satisfactory.

Type 310 mill is built in 10, 12 and 14 ft. lengths, all sizes being equipped with a 30 inch. diameter shell.

All mills are equipped with our new disc friction clutch pulley.

### SPECIFICATIONS

#### 10 FT. MILL

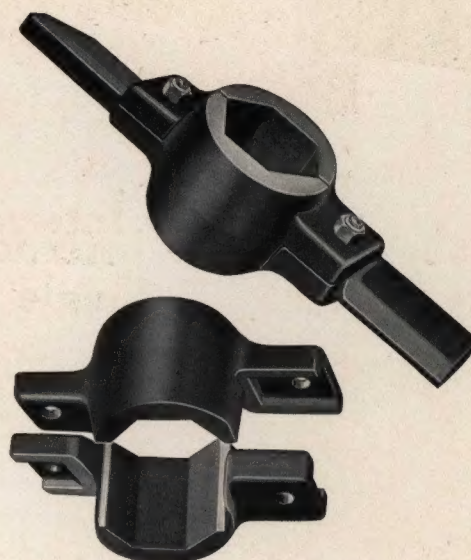
Length, 20'  
Width, 6'  
Height to top of shell 3' 4"

#### 12 FT. MILL

Length, 22'  
Width, 6'  
Height to top of shell 3' 4"

#### 14 FT. MILL

Length, 24'  
Width, 6'  
Height to top of shell 3' 4"  
Friction Clutch Pulleys 42" dia., 12" or 14" face  
R P M, 150 to 200.



KNIVES AND HUBS



# INTERNATIONAL

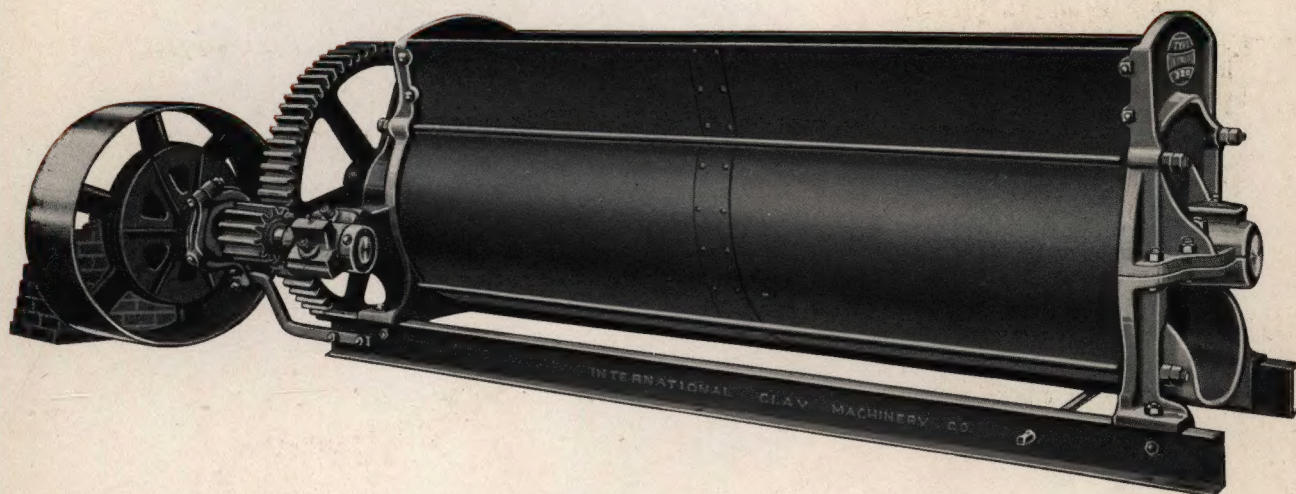
Types 320 and 330



Single Geared Pug Mills

SEPTEMBER 1917

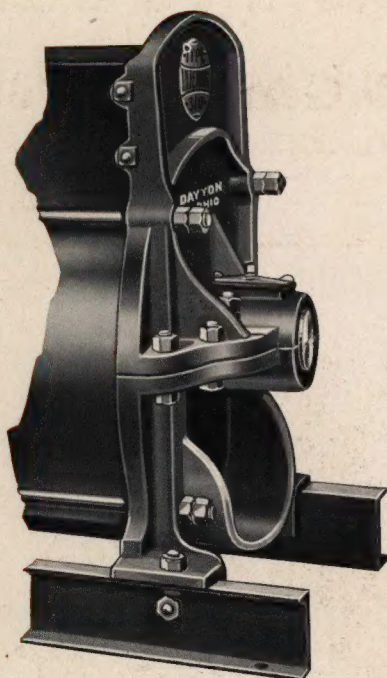
BULLETIN No. 8



International Type 320  
Single Geared Pug Mill

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





STANDARD DISCHARGE

MANY clay workers of small and medium capacity, require a fairly light, yet strong mill of ample pugging capacity.

Type 330 six foot and type 320 eight, nine and ten foot mills are of single gear design, and at the same time are equipped with many of the improvements shown on our heavier mills.

Not only are these mills equipped with our split hubs and replacable knives, but are supplied with our new disc friction clutch pulley as well.

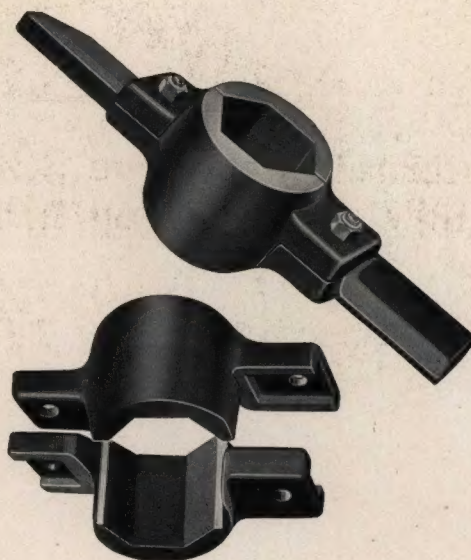
The mill is supplied with both bevel and straight knives, the proportion of each determining the capacity and speed of the mill.

For all work not of heavy duty proportions we can most heartily recommend this type of mill.

#### SPECIFICATIONS

##### Type 330 Single Geared Pug Mill

Length over all, 11' 3"  
Width over all, 4' 1"  
Height to top of shell, 2' 7"  
Pulley, 36"x 8"  
RPM, 150 to 200



KNIVES AND HUBS

#### SPECIFICATIONS

##### Type 320 Single Geared Pug Mill

Length over all, 8 ft.—14'  
9 ft.—15' 10 ft.—16'  
Width over all, 5' 4"  
Height to top of shell, 3' 8"  
Pulley, 36"x 10" or 12"  
RPM, 150 to 200



# INTERNATIONAL

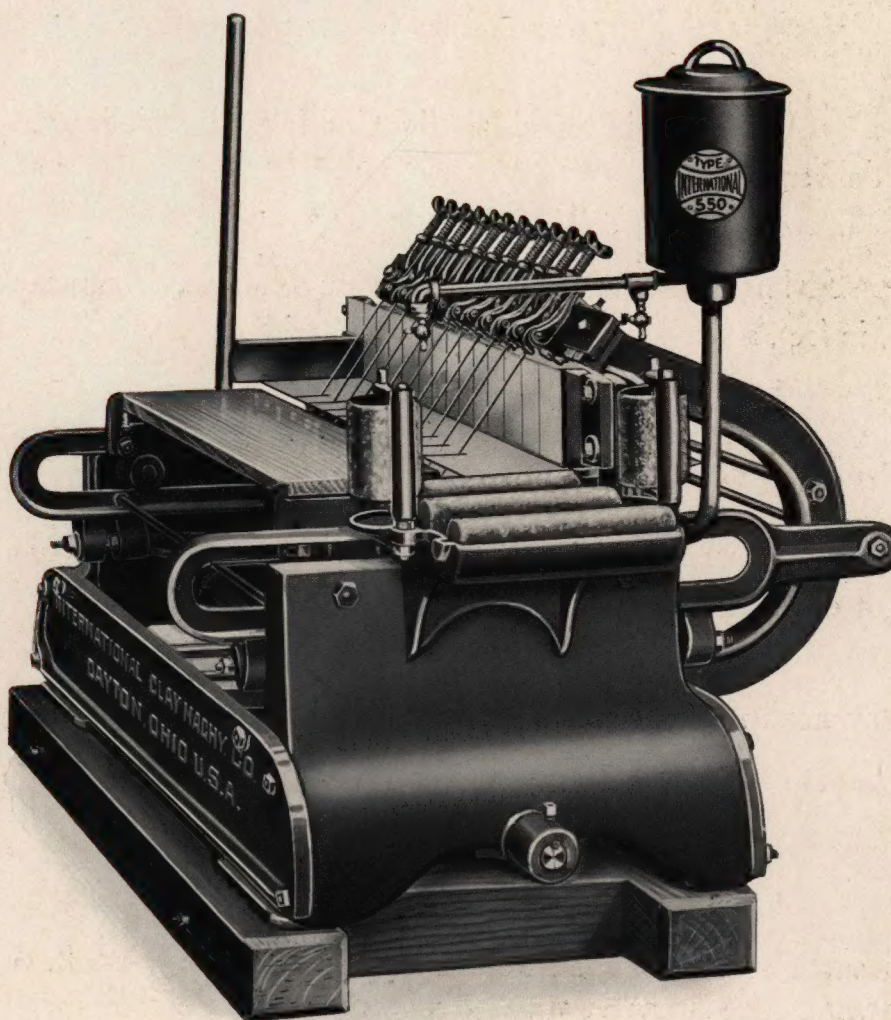
Types 550 and 551 Down Cut



Board Delivery Cutting Tables

AUGUST 1917

BULLETIN No. 9



TYPE 550 CUTTING TABLE  
RIGHT HAND

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**M**ANY yards using the pallet system of drying, and many fire brick plants and manufacturers of special clay products, require a hand table which makes a clean downward cut.

Type 550 cutter is cutting excellent face brick on many yards, producing 10 standard brick at each stroke of the lever, delivering them on a pallet ready for the drying floor or drying yard.

These cutters are built for either right or left hand delivery. Cut shows right hand delivery.

Type 551 is manufactured to cut Roman, Norman, Pompeian or Spanish sized brick, in fact, a bar of clay up to 14 inches wide.

Type 550 machine is arranged for cutting standard sized lengths of brick.

These machines are built true and precise, so that the product is exceedingly straight edged and square.

Many small manufacturers of face brick use this table exclusively.

## **SPECIFICATIONS**

Length over all, Type 550 and Type 551 Machines 5 ft. 6 in.

Width over all, Type 550, 4 ft.

Width over all, Type 551, 4 ft. 8 in.

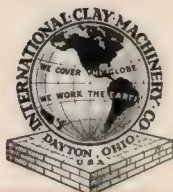
Height from floor to top of platen, both machines, 2 ft. 3 in.

Capacity, 15,000 to 35,000 per day of 10 hours.



# INTERNATIONAL

Type 555 Board



Delivery Cutting Table

AUGUST 1917

BULLETIN No. 10



INTERNATIONAL TYPE 555  
BOARD DELIVERY CUTTING TABLE

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



THIS we believe to be the simplest board delivery cutting table on the market.

It operates through a wire cable running around the segment of a fluted wheel, any lost motion being easily taken up.

It is especially valuable in fire brick and building brick work, as well as for special shapes.

It is a very easily operated and efficient machine.

## SPECIFICATIONS

Length over all, 6 ft.

Width over all, with lever down, 4 ft. 2 in.

Height from floor to top of platen, 2 ft. 1 in.

Capacity, 15,000 to 35,000 in 10 hours.



# INTERNATIONAL

Type 530 Semi-Auto



matic Cutting Table

AUGUST 1917

BULLETIN No. 11



INTERNATIONAL TYPE 530  
SEMI-AUTOMATIC CUTTING TABLE

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



THE 20,000 to 40,000 face brick manufacturer requires just as straight a cut as he who is large enough in capacity to use an automatic machine for the cutting of his face brick.

Type 530 Semi-automatic Cutter is designed to especially take care of small and medium capacities of fine wire cut face brick.

The construction of the machine is very solid, the diameter of the reel being as small as it can consistently be made. This permits the use of short wires, which gives a maximum clear cut to the brick.

Power is transmitted to the cutter through a flanged pulley, which contains a cone friction. The cut is made by power under the direction of the operator of the cutter.

The platens on the machine are set well forward of the axis of the reel, this giving a strictly diagonal cut. Notice furthermore, that the foot lever extends the entire length of the machine, which facilitates the operator in maximum capacity work.

Need we say more than that some of the finest face brick made in the United States and other countries are cut on this machine.

Mr. Small and Medium Face Brick, Paving Block and Building Brick Manufacturer, you can find no better cutter for your work than type 530.

The machine is regularly furnished with an off-carrying belt 10 ft. between centers.

## SPECIFICATIONS

Total length over all, 6 ft. 4 in.  
Total width over all, 5 ft.  
Total height over all, 6 ft.

Height from floor to top of platen, 2 ft. 6 in.  
Driving pulley, 24 in. dia. 6 in. face.  
Countershaft pulley, 12 in. face.  
R P M, 40 to 45



# INTERNATIONAL

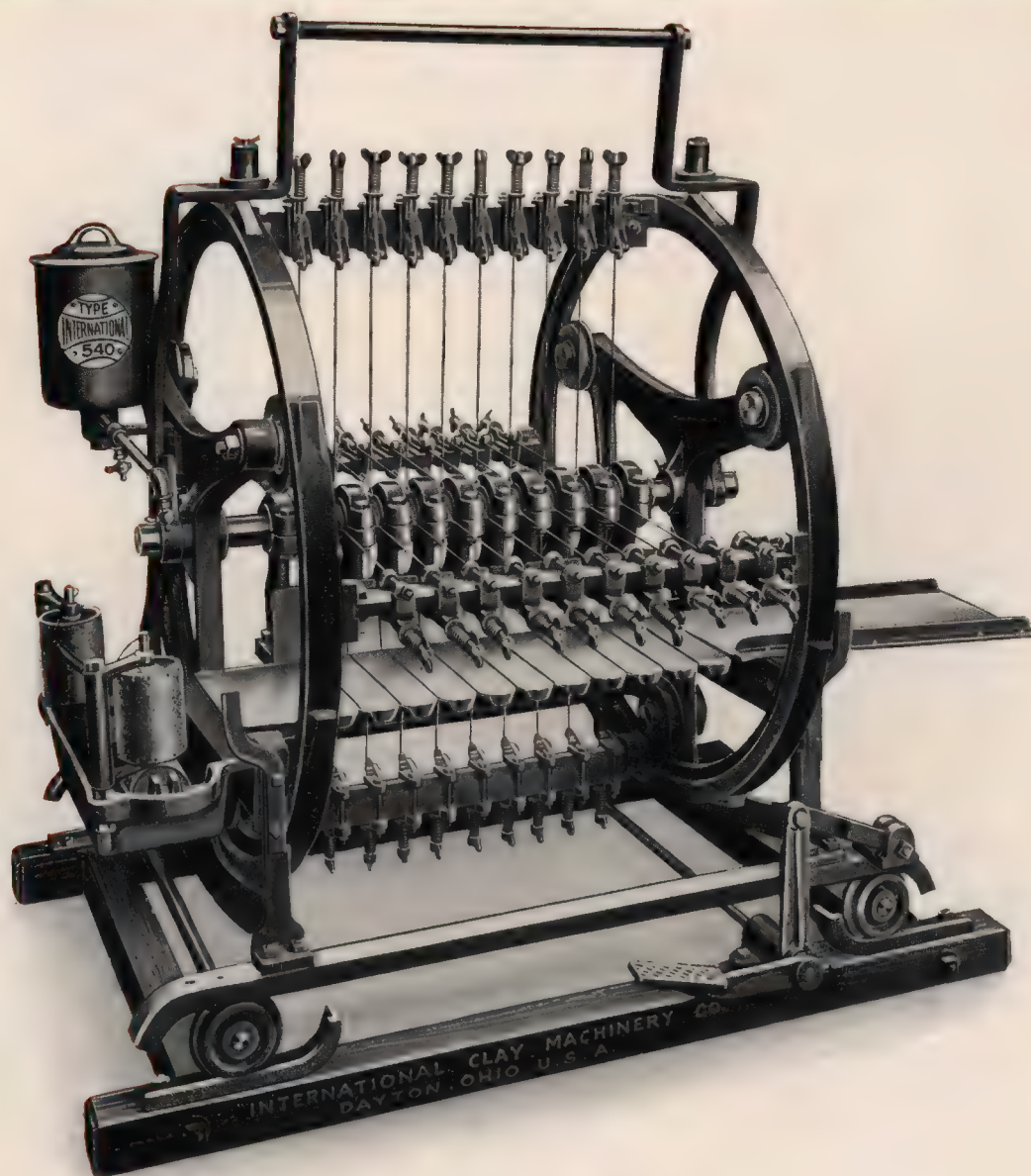
Type 540 Rotary



Hand Cutting Table

AUGUST 1917

BULLETIN No. 12



INTERNATIONAL TYPE 540  
ROTARY HAND CUTTING TABLE

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**T**HERE is quite a demand among small, medium and even large manufacturers of clay ware for a small hand cutting table that will cut an exceeding high class face brick.

Type 540 Cutter cuts a product which compares very favorably with either the semi-automatic, or the automatic type of rotary cutter.

The machine is built in a most precise manner, the reel you will note is fitted with four sets of cutting wires, this increasing the capacity of the cutter to the maximum and decreasing the labor necessary to operate it.

Note that the cut is a shear one, leaving clean, smooth edges.

The machine is regularly furnished with a 10 ft. off-carrying belt, off-carrier to be operated from a countershaft.

## SPECIFICATIONS

Length over all, 5 ft.  
Width over all, 4 ft. 11 in.  
Height over all, 4 ft. 6 in.

Height from bottom of cutter to  
top of platen, 1 ft. 9 in.



# INTERNATIONAL

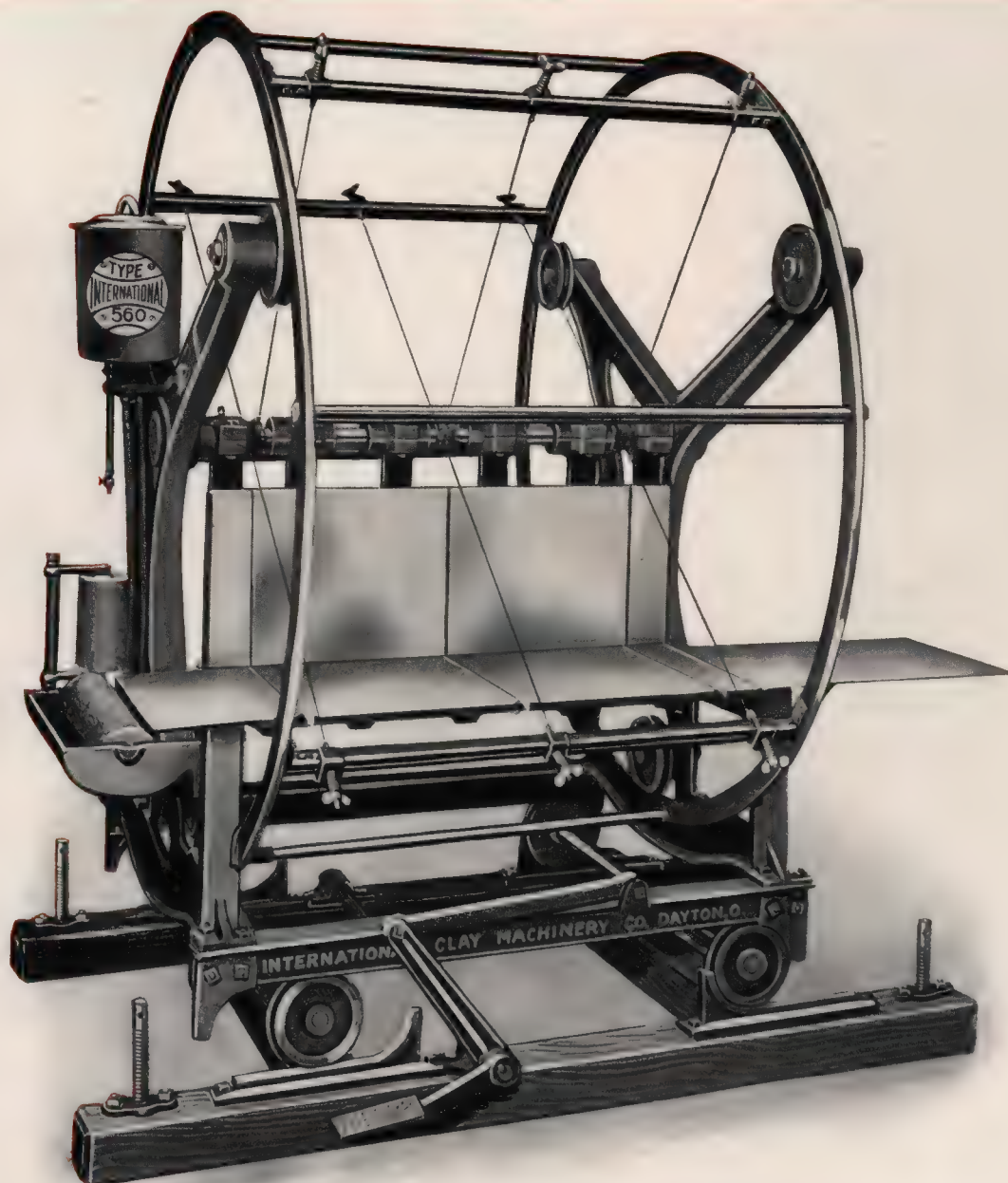
Type 560 Rotary Hollow



Ware Cutting Table

SEPTEMBER 1917

BULLETIN No. 13



INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



Certain clays when made up into hollow brick or fire proofing, require a diagonal rotary cut, in order not to crush the side walls and webs of the block.

Many manufacturers also necessarily make especially large block, which block require a diagonal cut, crushing in if cut in any other manner.

Type 560 Cutter is built with four sets of cutting wires, giving it a capacity on several plants of more than 20,000 partition tile per day of 10 hours.

The cutter is very readily operated, and with its light, yet rigid construction, is not a man killer.

The largest column that can be handled on the cutter is 16 in. high by 16 in. wide.

If required, the machine can be equipped with off-carrier, but this is not regularly furnished with the table.

## SPECIFICATIONS

Length over all, 8 ft. 9 in.

Width over all, 5 ft. 3 in.

Height over all, 6 ft. 9 in.

Height from floor to top of platen, variable  
from 2 ft. 5 in. to 2 ft. 9 in.



# INTERNATIONAL

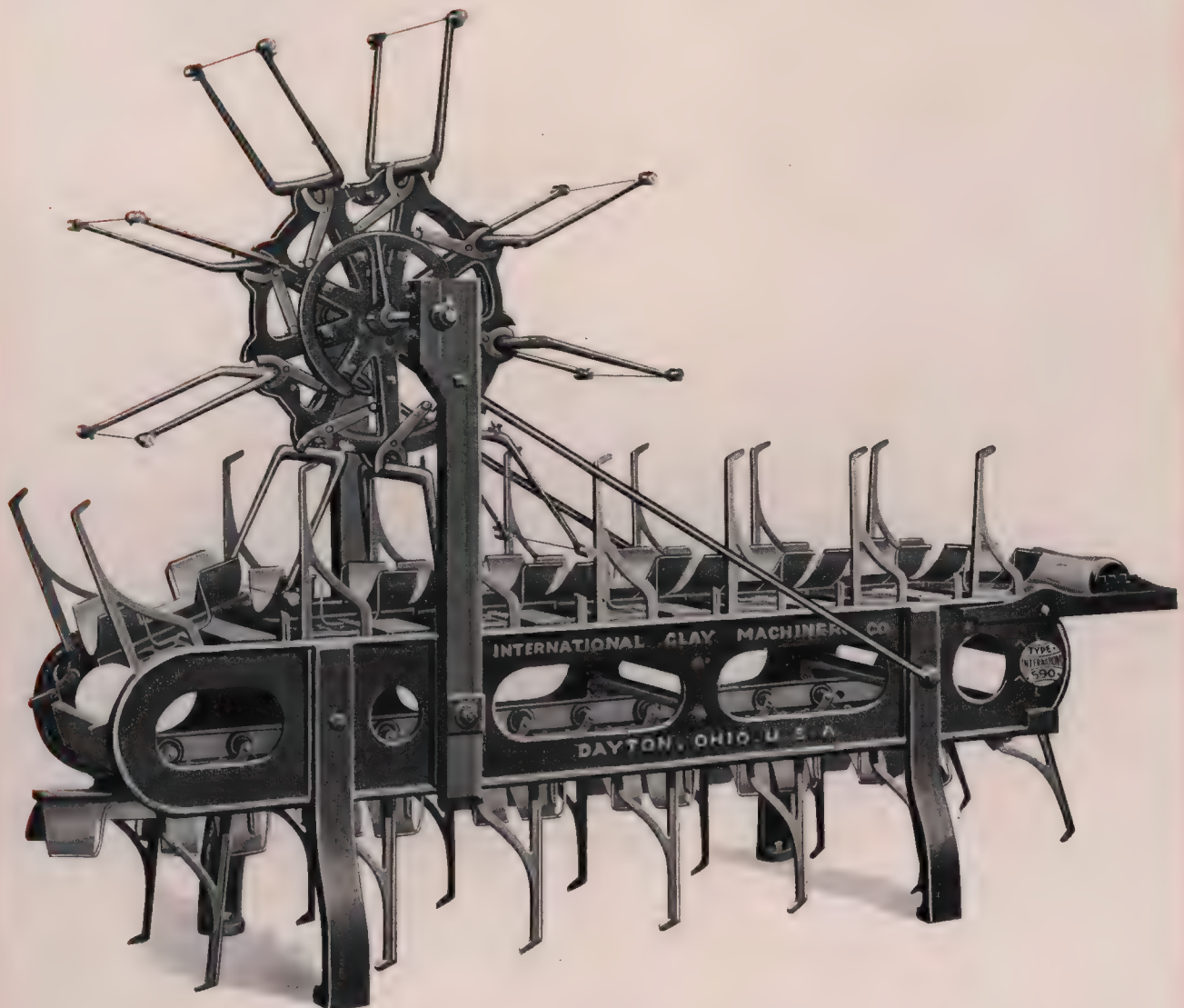
Tile and Hollow-ware



Automatic Cutters

NOVEMBER 1917

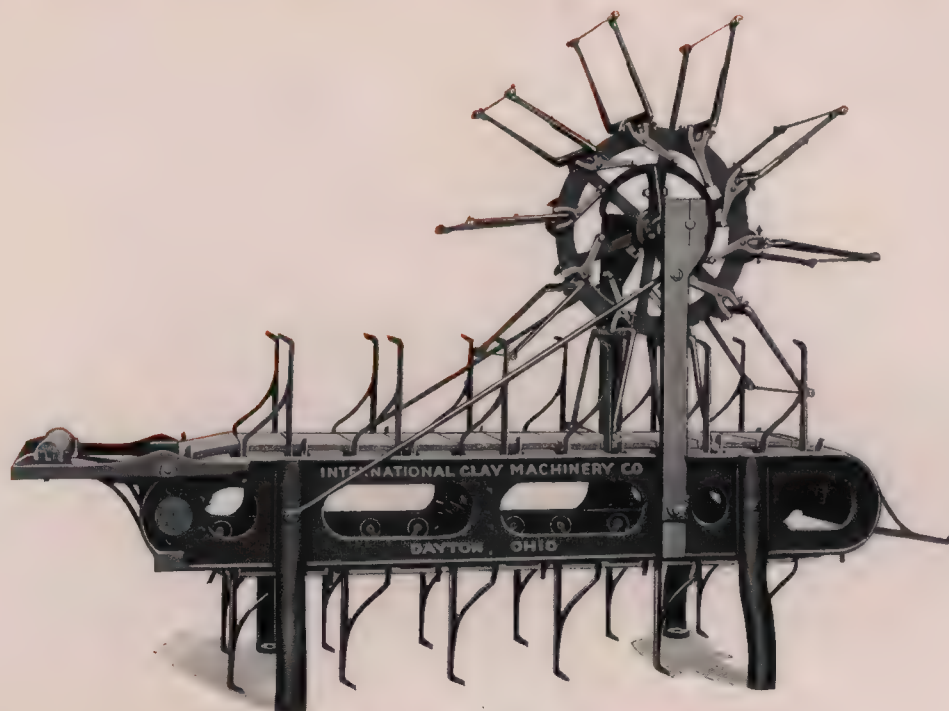
BULLETIN No. 13-A



International Type 590  
Tile and Hollow-ware Cutter

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





TYPE 580 FOR TILE AND HOLLOW-WARE

Types 580 and 590 Cutting Tables are automatic in operation, saving the expense of a cut-off man.

Type 580 Table is built to take care of small drain tile from 3" to 8" single stream, or can be fitted with double platens for 3" and 4" tile.

This same table can be arranged with flat platens to cut standard lengths of hollow block and fireproofing.

Type 590 Automatic Cutter is built for 10" and 12" drain tile, also can be furnished with flat platens for all standard sizes of partition tile and other hollow-ware.

Type 590 Table is exclusively built with cam reel attachment.

For short and tender clays, both tables can be fitted with a friction device operated from the auger machine, this friction device assisting the clay bar to operate the table.

Either machine can be fitted with off-carrier or roller delivery in hollow-ware work.

Special machines of this type to cut various lengths of hollow-ware, hollow brick, hollow block, roofing tile and special products can be furnished on specification.

## SPECIFICATIONS

### TYPE 580

Length over all, 10'  
Width over all, 2' 7"  
Height over all, 6' 8 $\frac{5}{8}$ "  
Approx. shipping wt. 1000 lbs.

### TYPE 590

Length over all, 10' 1 $\frac{1}{2}$ "  
Width over all, 2' 9"  
Height over all, 8' 1"  
Approx. shipping wt. 1200 lbs.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

Type 595 Combination



Hand Cutting Table

JANUARY 1918

BULLETIN No. 13B



INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**T**HIS is a very simple hand table used in small capacities of single or double stream end cut brick, hollow tile, hollow-ware, hollow block, flat tile, and drainage tile.

This table can be raised or lowered to suit the ware, and the wires can be spaced as desired. For the cutting of drain tile trough rollers are required.

In some instances, for special work, this table is fitted with an off-carrier at additional expense.

### **SPECIFICATIONS**

Length over all, 7 ft.

Height over all, 3 ft. 6 in.

Width over all, 2 ft. 6 in.

Approximate weight, 600 lbs.



# INTERNATIONAL

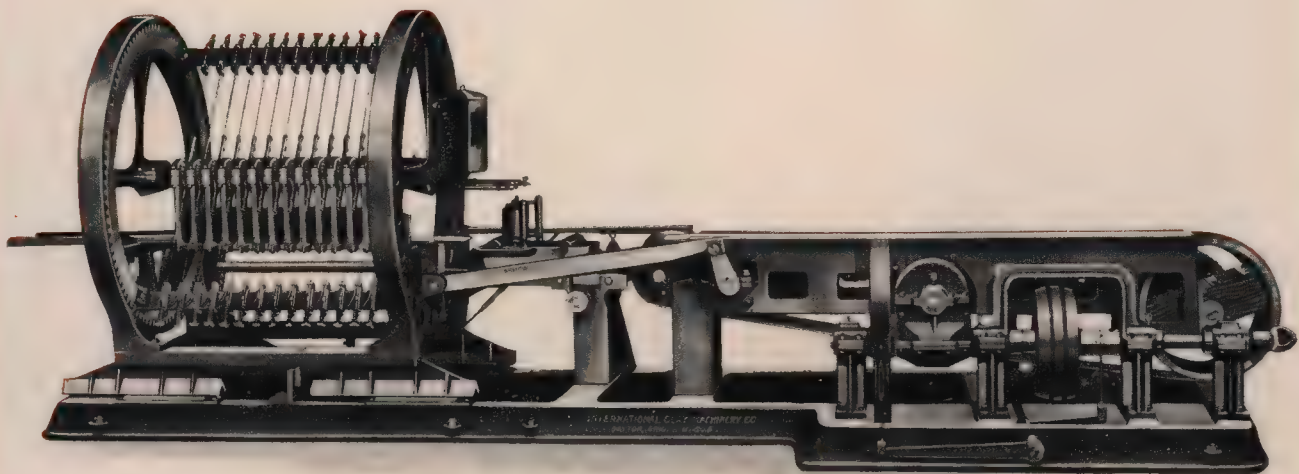
Types 500 and 510



Automatic Cutting Tables

OCTOBER 1917

BULLETIN No. 14



International Type 510 Cutting Table  
Showing Reverse Side

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





International Type 510 Rotary Automatic Cutting Table





DETAIL SHOWING GOVERNOR AND ASSISTER BAR

“Will it cut straight brick?” is the question invariably asked with regard to an Automatic Cutting Table.

Types 500 and 510 are built with continuous motion reels, the speed of the reel in longitudinal travel being tied to the speed of the bar of clay, it being impossible on either cutter to cut a crooked brick, unless the entire clay bar slips on the measuring belt.

Practically all of the many cutters on the market depend on the lubrication of the clay bar for a straight cut. The assister bar attached to the carriage, operated by friction from a pulley on the belt shaft nearest to the reel, gives the carriage the same speed as the bar of clay, making a straight cut imperative.

This Cutter is without question of doubt, the most mechanically built machine of this type on the American market, the reel being operated by a telescopic joint practically frictionless, while the gears on the measuring section are steel cut, the entire machine being built in a most mechanical manner.

Both cutters operate as follows: Friction of the bar of clay on the onbearing belt operates the governing device which controls the inlet of the power to the cutting table as well as the speed of the entire mechanism, the sensitiveness of the governor being very acute.

The power on being received from the brick machine, enters the cutting table through a cone friction clutch, this friction clutch controlling the power and the speed of the cut.

Many of these cutting tables are in operation, cutting building brick, face brick and paving block, as well as refractory ware.



Type 500 on one plant averages over 100,000 face and building brick per day.

Compare these tables with any other on the market. They have no equal for straightness of cut, continuity of operation and capacity.

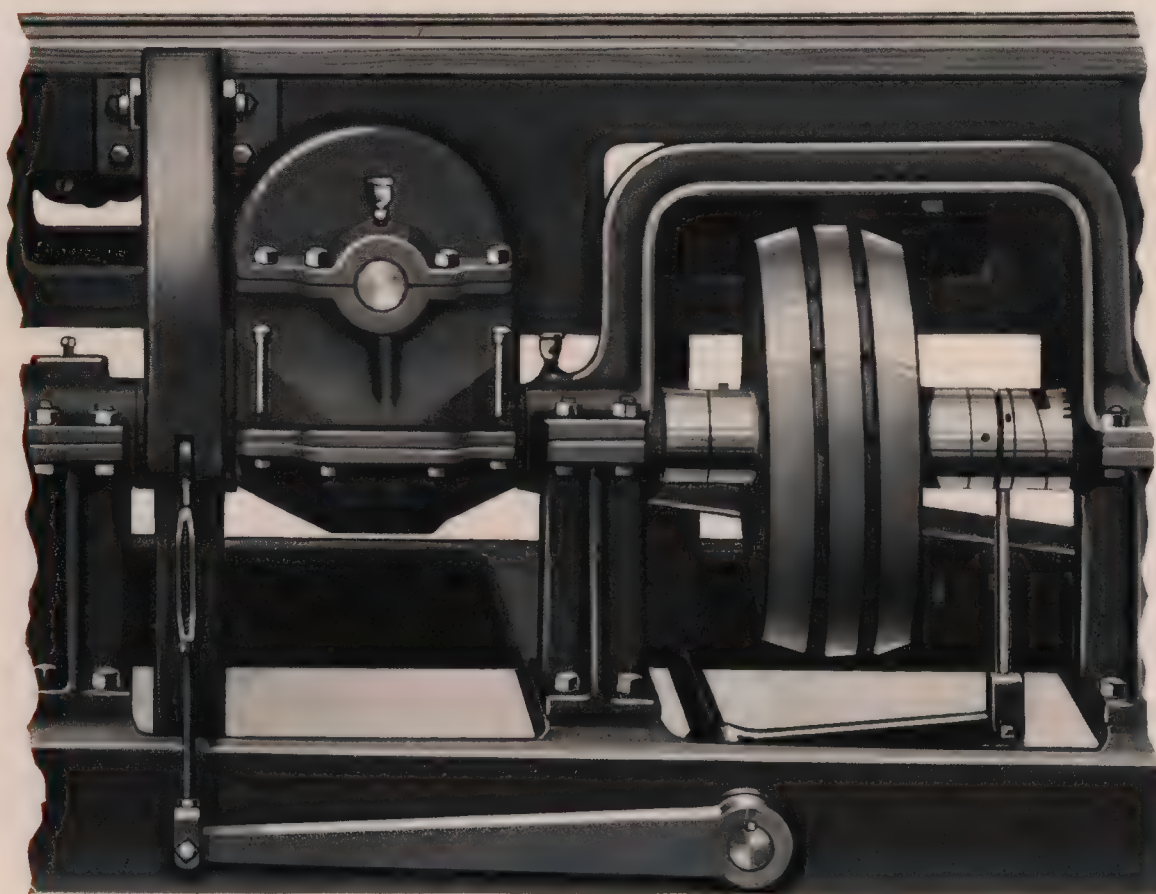
### SPECIFICATIONS

Type 510 is designed for a capacity of from 25,000 to 75,000 side cut brick per day of ten hours.

Length over all, 17' 7"  
Width over all, 5' 4"  
Height over all, 5' 7"  
Height to top of platen, 2' 5"  
Off-carrier belt, 25' long.

Type 500 is of much more massive construction than the Type 510 and is designed to make 75,000 to 150,000 per day of ten hours.

Length over all, 19' 8"  
Width over all, 5' 4"  
Height over all, 5' 7"  
Height to top of platen, 2' 5"  
Off-carrier belt, 35' long.



DETAIL SHOWING FRICTION CONTROL AND BRAKE

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

Type 430



Auger Machine

SEPTEMBER 1917

BULLETIN No. 15



International Type 430  
Auger Machine

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



THE tendency of modern auger machines is toward a straight barrel and high capacity augers.

Type 430 Auger Machine has very little compression in the auger mechanism, the compression of the clay coming between the auger and the die. This type of construction allows the clay free access to the die in hollow-ware work.

Not only is Type 430 Machine manufacturing hollow-ware on many plants, but is turning out millions of face, paving, building and fire brick per year.

The machine is very staunch in construction, the main gear and pinion having a 10 in. face, the entire machine is of heavy construction, with the friction clutch pulley self-contained on the base.

The bearings are long and readily accessible. The shafts are heavy, the main auger shaft being of hexagon hammered steel 5 in. in diameter.

The thrust is a combination marine and standard submerged, the gear end of the main shaft being fitted with a marine sleeve, eliminating all wear on the shaft.

For the manufacture of from 40,000 to 60,000 standard sized brick, we can most heartily recommend this machine.

### SPECIFICATIONS

Length over all, 13 ft. 4 in.

Width over all, 6 ft.

Height over all, 4 ft. 3 in.

Pulley, 48 in. diameter by 14 in. face.

Capacity, 40,000 to 60,000 brick in 10 hours.



# INTERNATIONAL

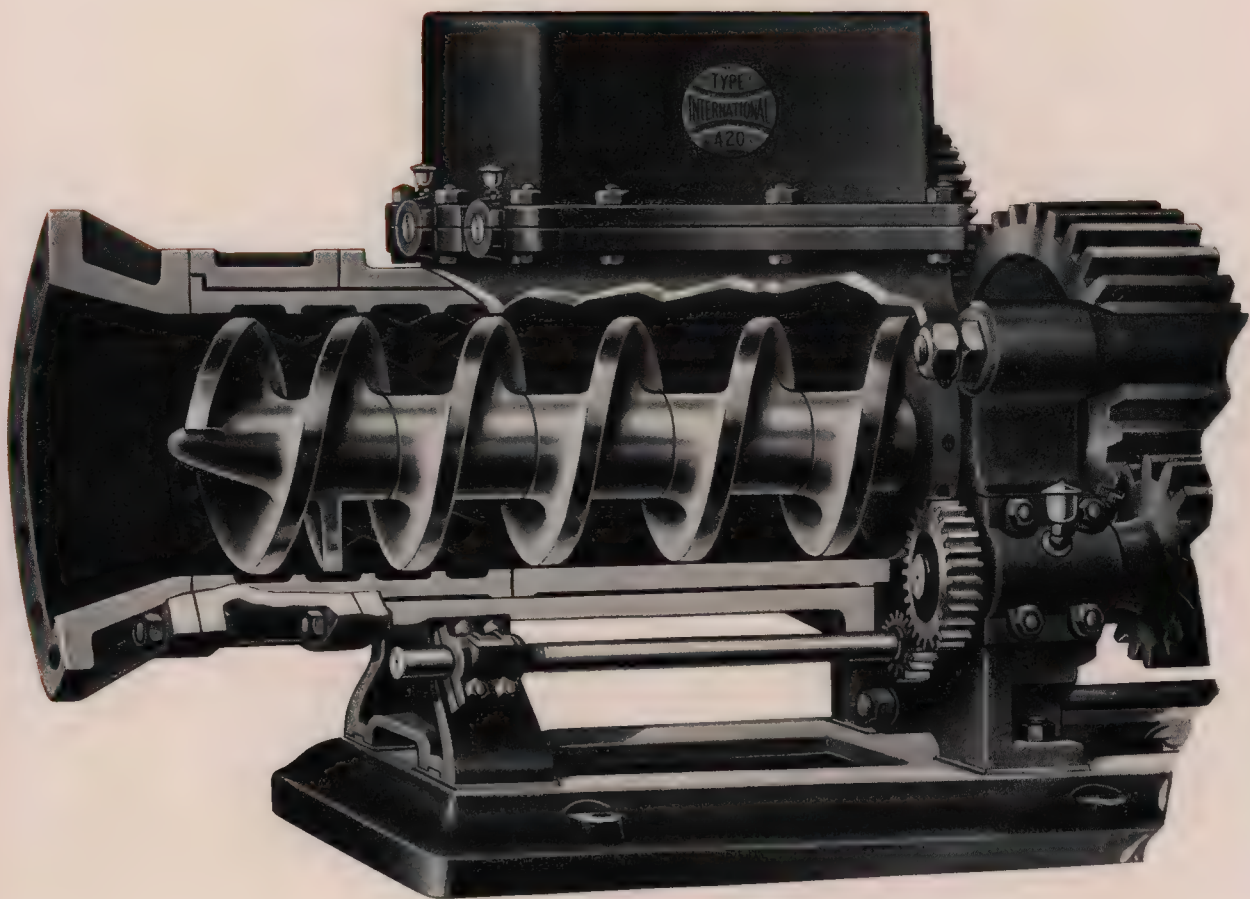
Type 420 Hollow



Ware Machine

OCTOBER 1917  
SUPERSEDING

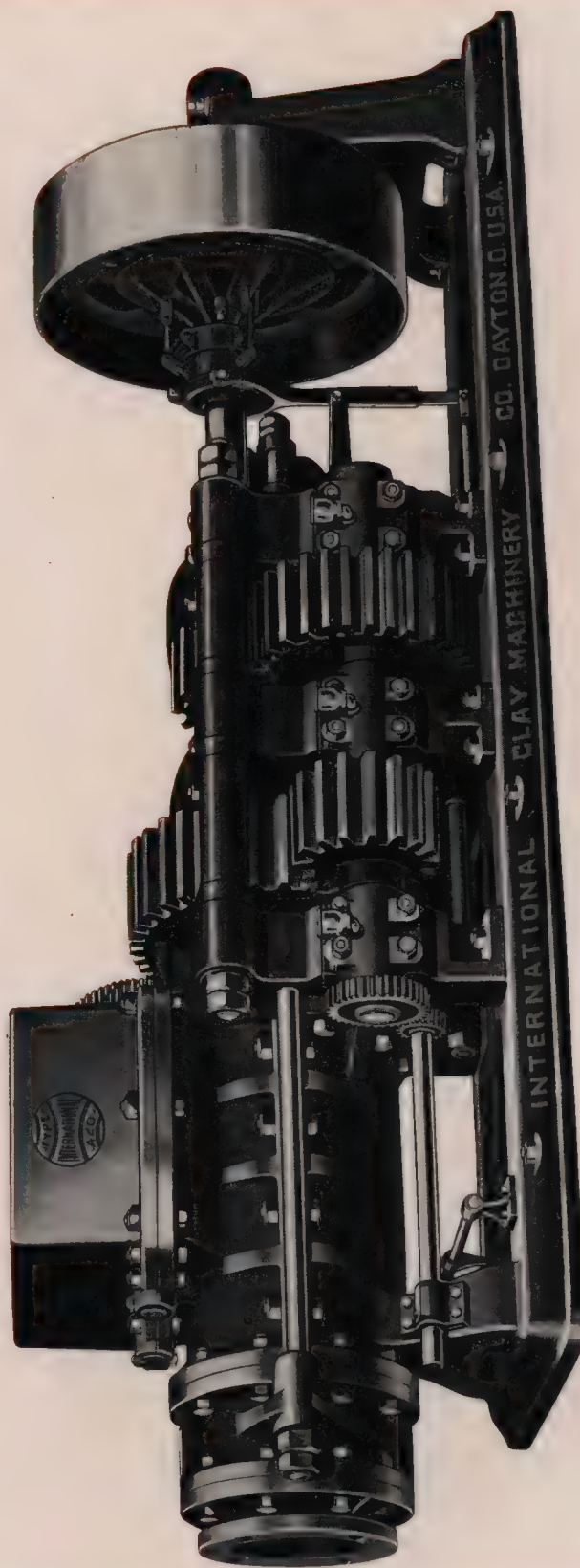
BULLETIN No. 16  
BULLETIN No. 2



SECTION SHOWING AUGERS  
AND LINERS

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





International Type 420 Hollow-ware Machine



TYPE 420 is to our knowledge, the largest single hollow-ware machine made, being most massive in build, with exceedingly large shafting and gears.

It has three back frames instead of the ordinary two, these frames being thoroughly doweled to the base.

Two thrusts are found on the main shaft, one of the marine type, the other of the floating submerged design.

The augers are cast from a special mixture of metal compounded from our own formulas, the entire mechanism being very hard and tough. These augers are also high pitched and very fast.

The barrel is equipped with removable liners, which closely fit the auger mechanism, giving the clay no chance to flow backwards.

The base is solid cast iron, of heavy construction, it taking the outboard pulley bearing.

The front of the machine is tied to the back frame and the oiling system used is of an approved design.

The machine is equipped with an International New Type Friction Clutch Pulley.

The force feed is most positive in action with knives made of cast steel. All gears are cut from solid steel blanks with a safety factor many times over that required for heavy duty work.

The augers are straight for the entire length of the barrel with 16'' and 20'' mechanism. 12'' mechanism for small ware shows a slight taper at the propelling end.

Type 420 Hollow-ware Machine, in the light of its present operation, we believe to be the strongest, heaviest and largest capacity hollow-ware machine on the market.

## SPECIFICATIONS

Length over all 15' 6''

Width over all 5' 9''

Height over all 5' 10''

Size of pulley 48'' x 14''

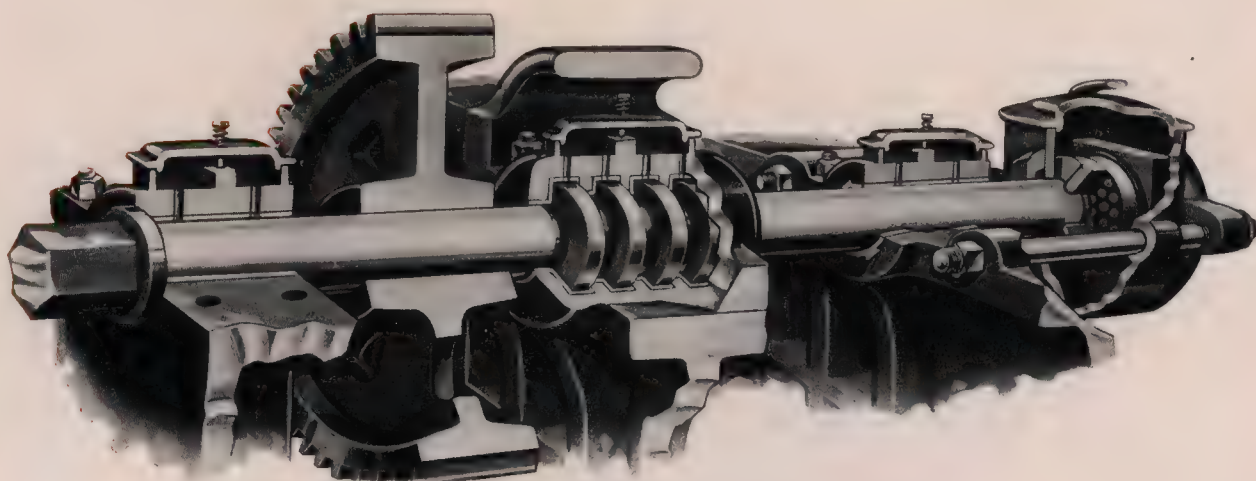
RPM 200 to 300

Weight approx. 25,500 lbs.





**FORCE FEED DEVICE**



**DETAIL OF SHAFT, THRUSTS AND FRAMES**

**INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.**



# INTERNATIONAL

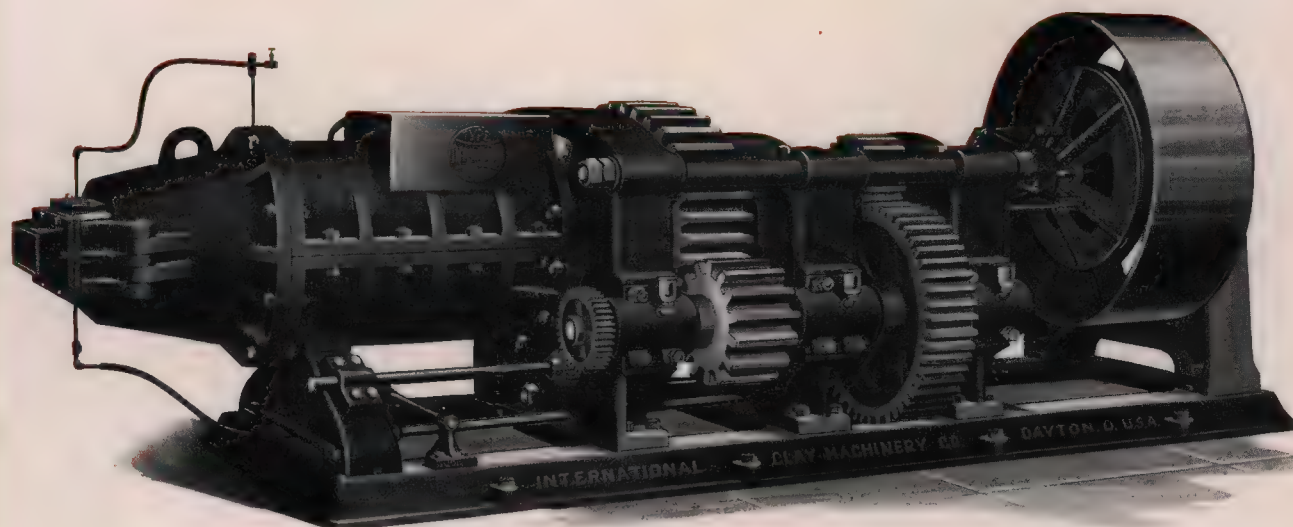
Type 410



Auger Machine

OCTOBER 1917  
SUPERSEDING

BULLETIN No. 17  
BULLETIN No. 3



INTERNATIONAL TYPE 410 AUGER MACHINE  
FOR  
PAVING BLOCK, BUILDING BRICK  
AND REFRACTORIES

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**T**HE manufacture of paving block, refractories and high capacities of building brick require strong and durable auger machines.

The back pressure transmitted to the frames and thrusts of an auger machine making 100,000 building brick per day is enormous—great strength and heavy duty design is required to withstand this strain.

Bearing this in mind, Type 410 Auger Machine has been designed with three back frames instead of the customary two.

These back frames are accurately doweled to the base, each fit being thoroughly machined throughout the entire mechanism.

The base of the machine is solid cast iron, and carries the outboard bearing, which bearing is also accurately doweled to the base.

Two thrust bearings are placed on the main auger shaft. One is of the marine type, the other is a floating submerged bearing.

All gears are cut from steel blanks, each having a much larger factor of safety than is actually required for high capacity work.

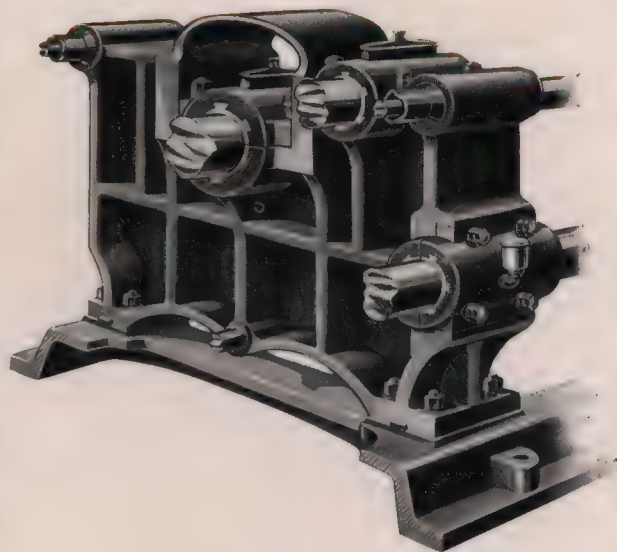
The barrel of the machine is 24" in diameter and the auger mechanism is high pitched and fast.

The shafts are very heavy, the one carrying the augers being made of hammered hexagon steel.

The augers are cast from a special mixture of metal compounded from our own formulas, the entire mechanism being very hard and tough.

What other auger machine on the market is built in such a workmanlike manner? What other machine is so fitted for heavy duty work?

"The proof of the pudding" lies in the fact that several of these machines are daily averaging from 400 to 450 tons of brick and block.



DETAIL OF GEAR FRAME

### SPECIFICATIONS

Length, 15' 6"

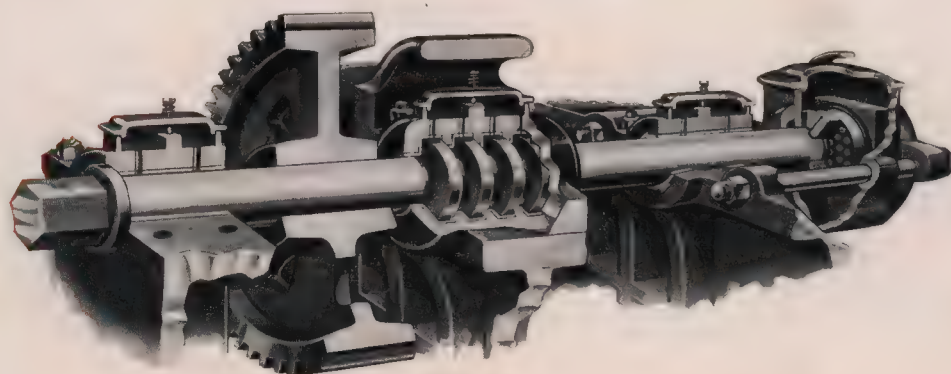
Width, 5' 9"

Height, 5' 6"

Approximate weight, 20,000 lbs.

Pulley 48" diameter by 14" face

R. P. M. 200 to 300



Detail Showing Marine and Submerged Types of Thrust Bearings, with Massive Construction of Gears, Shaft and Frames.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

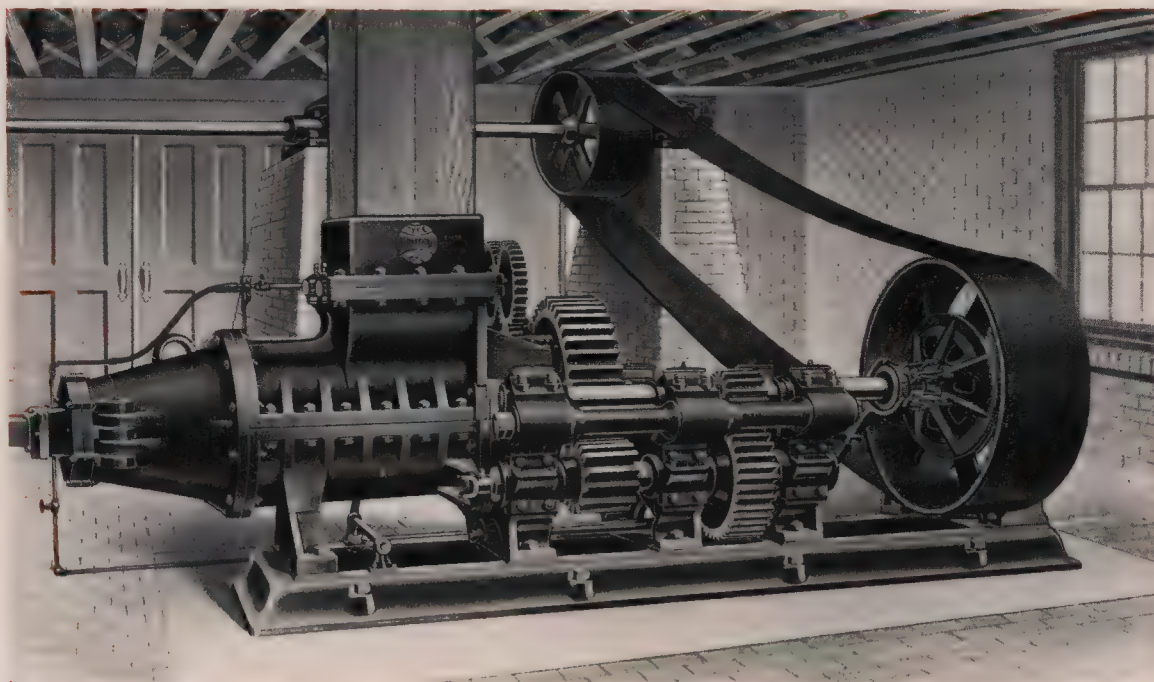
Type 400



Auger Machine

OCTOBER 1917

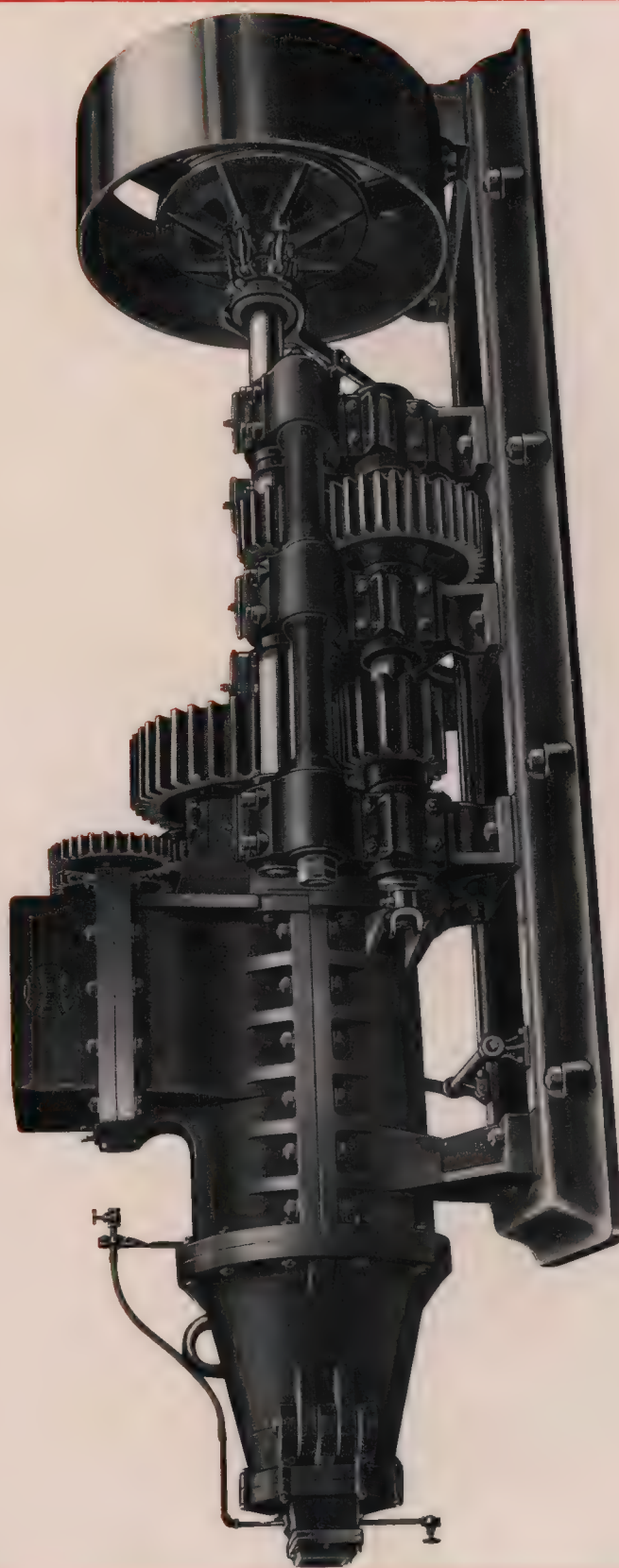
BULLETIN No. 18



TYPE 400 AUGER MACHINE  
FOR  
HIGH CAPACITIES OF BUILDING BRICK,  
PAVING BLOCK AND REFRACTORIES

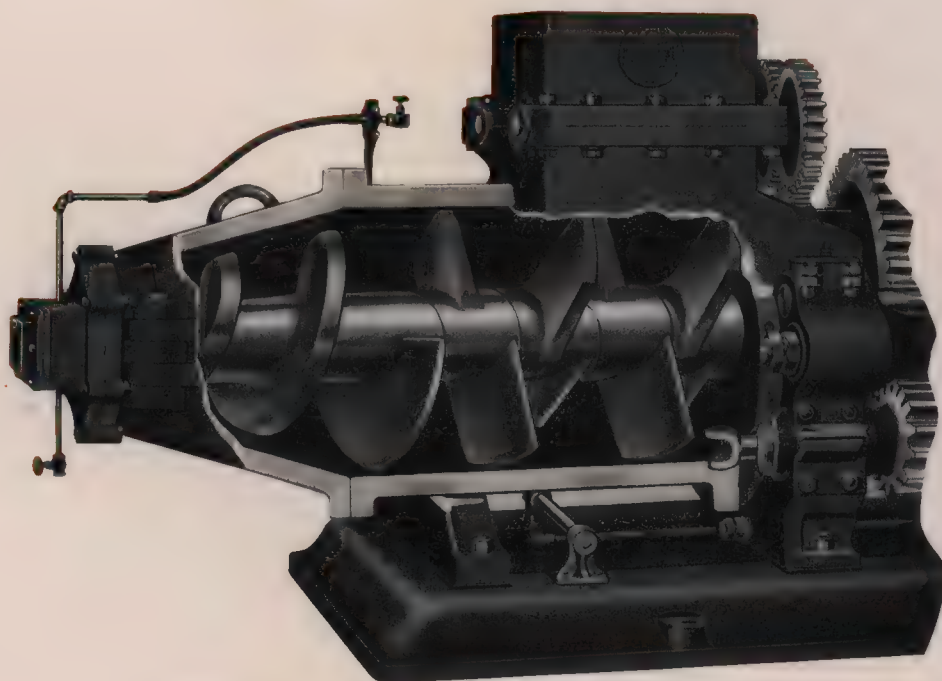
INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





INTERNATIONAL TYPE 400 AUGER MACHINE





SHOWING HIGH SPEED AUGER MECHANISM

TYPE 400 auger machine is to our knowledge, the largest capacity and heaviest auger machine on the present day market. One of these machines has made 50,000,000 common brick in one year's time. One machine has run as high as 253,000 side cut common building brick in ten hours.

One machine has averaged 200,000 brick per day of ten hours in 26 consecutive working days. One machine has made 177,000 side cut building brick per day of ten hours from clay direct from the bank at 21° below zero.

What other auger machine can even approximate these records?

The base of the machine is solid cast iron with the out-board bearing self-contained on this base.

The machine has three back frames instead of the ordinary two, the main shaft being equipped with two thrusts, one marine and one submerged floating, all of most ample proportions.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



Its shafts are massive, the main shaft being of forged hexagon hammered steel, while the gearing is cut from solid steel blanks and is of wide face.

The machine is equipped with a very positive force feed, the hopper being large, to care for enormous capacities of clay.

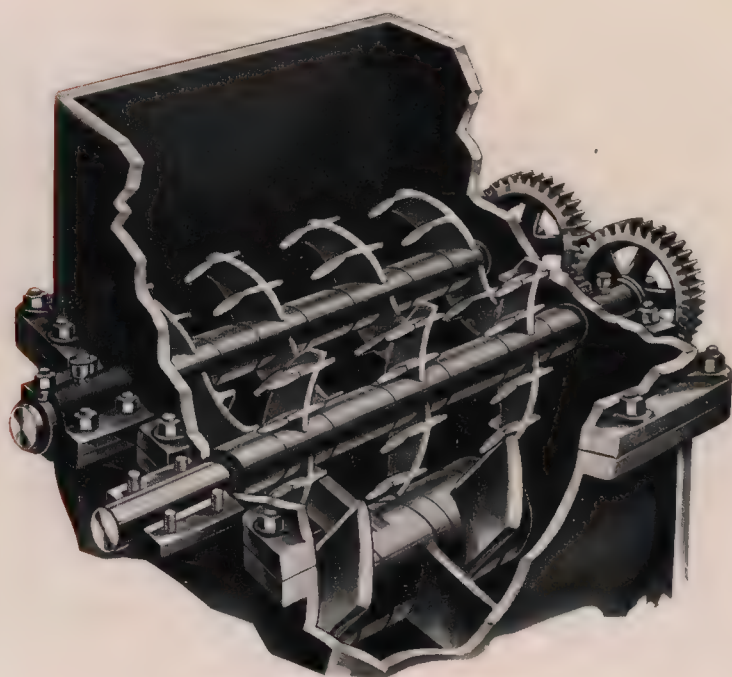
Its concaves are 28 inches in diameter. The auger mechanism is made from our special mixture of hard metal. The pitch of the augers is high and they are very fast, handling as high as 760 tons of clay in 10 hours.

The frame of the machine is of girder design, its strength is enormous, while the friction clutch pulley is of our latest disc type.

This machine fitted with liners for the manufacture of hollow-ware has given almost unlimited capacity.

This machine, its users most heartily recommend in the manufacture of exceedingly high capacities of building and face brick, paving block and refractory ware.

What other auger machine has made 50,000,000 side cut brick in one year's time?



DETAIL OF FORCE FEED

## SPECIFICATIONS

Length, 19' 9"

Width, 6' 9"

Height, 7'

Size of Pulley, 48"x 16"

RPM, 250 to 300.

Shipping Weight, Approx. 26,000 lbs.

Capacity, 75,000 to 250,000 per day.



# INTERNATIONAL

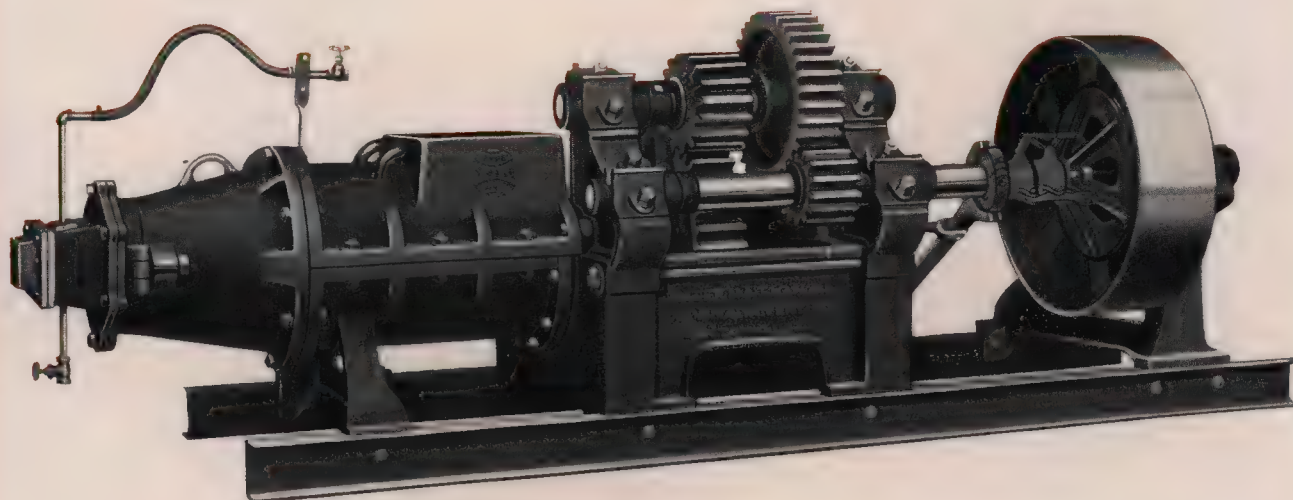
Type 440



Auger Machine

OCTOBER 1917

BULLETIN No. 19



International Type 440  
Auger Machine

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**T**YPE 440 Auger Machine has been designed especially for medium capacities of building brick, paving brick and refractories.

Its frame is of solid one-piece box type, and the pulley outboard bearing is self-contained on the channel skids.

The concaves have an extra large internal diameter, giving the machine a maximum capacity for its weight.

The shafts are ample for any legitimate load; the bearings are long, and the gearing is of unique, yet efficient design.

### **SPECIFICATIONS**

Length over all, 12 ft.

Width over all, 5 ft. 6 in.

Height over all, 4 ft. 4 in.

Pulley, 36 in. diameter by 10 in. face.

R P M, 200.

Capacity, 20,000 to 35,000 standard brick.



# INTERNATIONAL

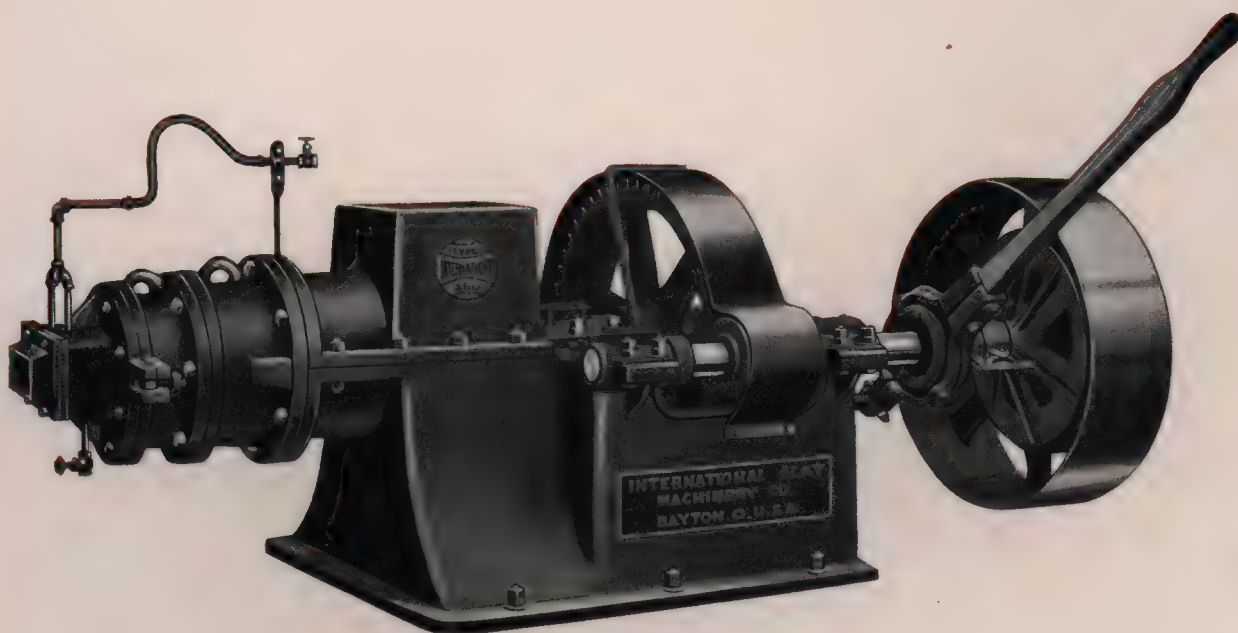
Type 460



Auger Machine

SEPTEMBER 1917

BULLETIN No. 20



International Type 460  
Auger Machine

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**T**YPE 460 Auger Machine is built for small capacities of brick, drain tile, and hollow-ware.

It is also used to quite an extent in this country and Canada for experimental work, such as Government and State testing stations.

The auger mechanism has practically no compression within itself, it is fast, with practically the same diameter from the lip of the auger to the rear, being thus admirably fitted for hollow-ware and drain tile work.

Notice its solid frame, heavy shafting for its size, also that it is of the single geared variety, that is, having one pinion and one master gear.

The driving shaft has two bearings on the frame, one on each side of the pinion, while the pulley is further supported by an out-board bearing separate from the machine proper.

For all experimental work and small capacities in everyday practice, we can most heartily recommend this auger machine.

## SPECIFICATIONS

Length over all, 10 ft. 6 in.

Width over all, 4 ft. 8 in.

Height over all, 4 ft. 7 in.

Pulley, 36 in. diameter by 10 in. face.

R P M, 200 to 250.

Capacity, 5,000 to 10,000 standard brick per day of 10 hours.



# INTERNATIONAL

Type 470 Combined



Auger Machine

OCTOBER 1917  
SUPERSEDING

BULLETIN No. 21  
BULLETIN No. 4



FOR  
BRICK, DRAINAGE TILE, HOLLOW WARE AND  
ALLIED PRODUCTS

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**M**ANY clayworkers of medium and small capacity, realize the need of a good, strong, compact combination machine.

Type No. 470 has been especially designed to fill such a need, it requiring small head room.

It is single geared, that is, it has but one gear and one pinion for driving.

The auger mechanism is practically straight for its entire length, this peculiarly fitting the machine for the manufacture of tile and all sorts of hollow-ware, as well as brick.

The augers, high pitched and fast, are made from a special mixture of metal compounded from our own formula, the entire mechanism being very hard and tough.

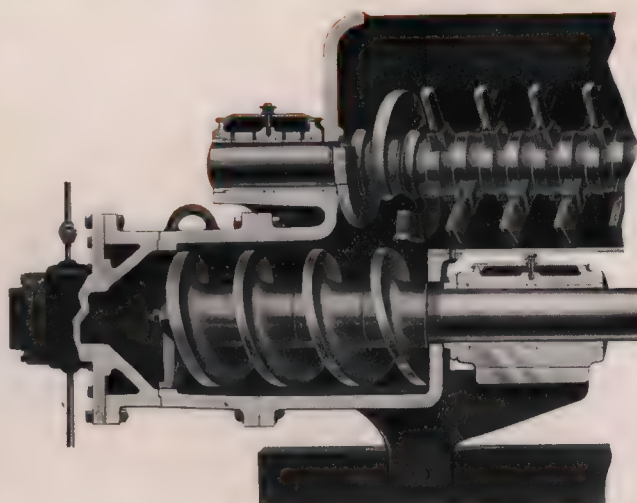
The pug mill knives are separate from the hub, and are most readily replacable, the speed of the clay through the pug mill being entirely controlled by means of the proportion of straight to bevel knives.

The pugging chamber thrust is of the marine type, while the auger thrust is a submerged one with large area.

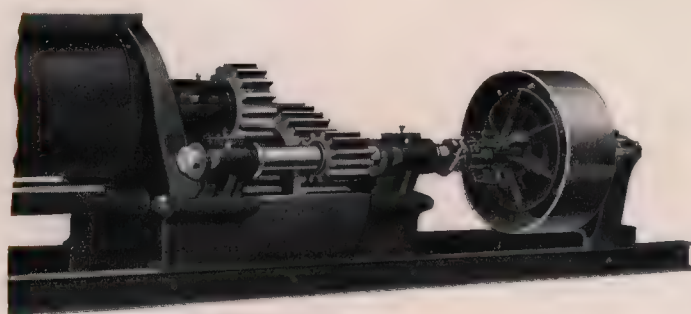
The pug mill, or the pugging chamber at the discharge end is fitted with large wipers which give a positive force feed to the auger mechanism.

The machine is built very heavy throughout, with large shafting and ample gears.

The rear frame of the machine is covered with a neat steel housing, protecting the gears and bearings from dust and other dirt.



**AUGER MECHANISM SHOWING  
POSITIVE FORCE FEED**



**DETAIL OF REAR FRAME AND GEARING**

## **SPECIFICATIONS**

Length, over all, 17'

Width, over all, 5' 6"

Height, over all, 4' 3"

Size of Pulley, 42" x 12"

R. P. M. of Pulley, 150

Capacity in brick, 20,000 to 40,000 per  
day of 10 hours.



# INTERNATIONAL

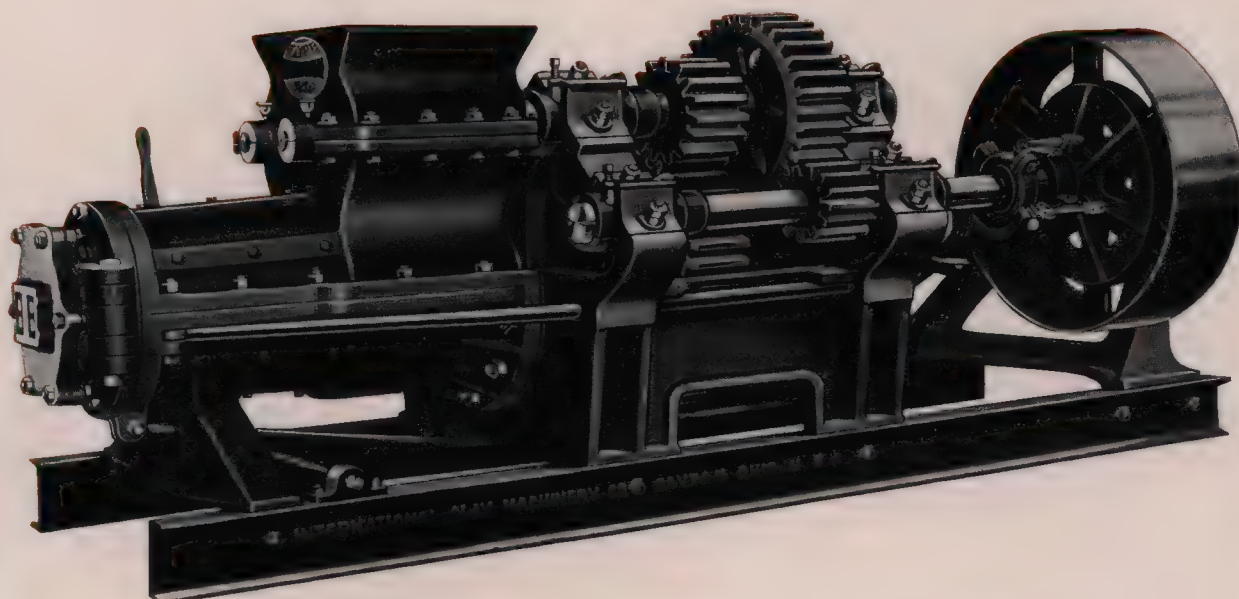
Type 450



Auger Machine

JANUARY 1918

BULLETIN No. 22



INTERNATIONAL TYPE 450 AUGER MACHINE

FOR MEDIUM CAPACITIES OF BRICK  
HOLLOW-WARE, DRAIN TILE, Etc.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## Type 450 Auger Machine

TYPE 450 Auger Machine is built for small and medium capacities of brick, hollow tile, and drain tile. Its frame is of the solid one-piece box type and the pulley outboard bearing is self-contained on channel skids.

The machine is fitted with a force feed, positive in action, the force feed gears being cut steel.

The auger mechanism is fast and closely fits the barrel, the augers being made from our special auger mixture.

The concaves are heavy and the front of the machine is securely tied to the back frames by stretcher rods.

The shafts are ample for any legitimate load. The bearings are long, and the gearing is of a unique, yet efficient design.

### SPECIFICATIONS:

Length over all, 11 feet  
Width over all, 5 feet, 4 inches  
Height over all, 4 feet, 2 inches  
Pulley, 36 in. dia. x 10 in. face. RPM, 200  
Capacity 20,000 to 35,000 standard brick  
in 10 hours' continuous operation.



# INTERNATIONAL

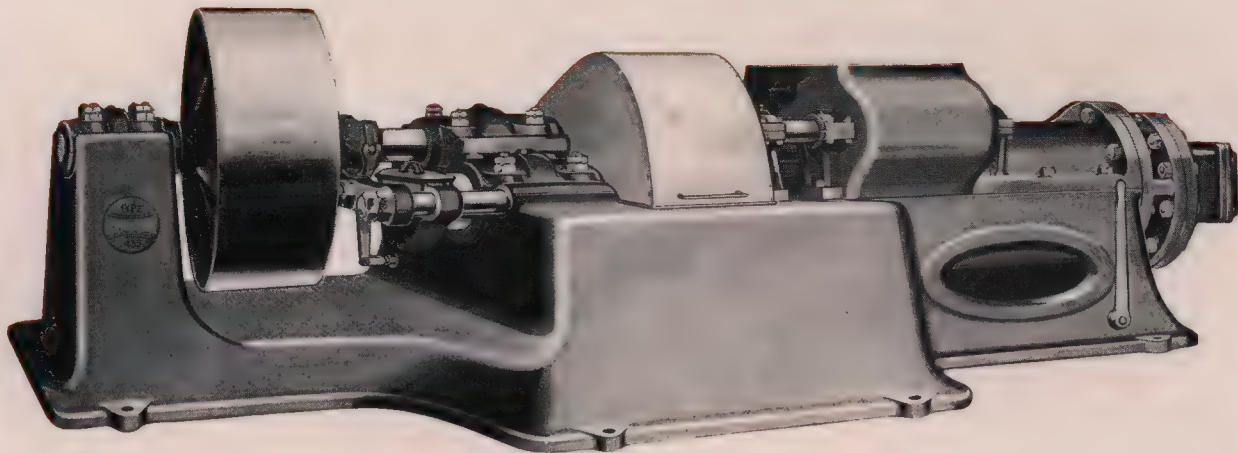
Type 435 Brick



and Tile Machine

JULY 1919

BULLETIN No. 24



TWO CASTINGS  
TWO SHAFTS  
TWO GEARS

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## Specifications

### SPECIFICATION SUMMARY

Length over-all, 14' 0".  
Width over-all, 6' 1½".  
Height over-all, 4' 8¼".  
Base length, 12' 10¾".  
Base width, 5' 7".  
Height to center auger, 2' 2¼".  
Height to top of hopper, 3' 8¼".  
Length from center of pulley to center of hopper, 7' 5⅜".

### SHAFTS

Auger, 5" round.  
Driving, 3-11/16".  
Feed, 2-7/16".

### GEARS

Single, 9" face.  
Ratio, 1 to 3.93.

### BEARINGS

Ring or chain oiled.  
Driving shaft, 14" long.  
Auger shaft, 16" long.

### THRUSTS

1, Marine, 5 collars.  
1, Floating disc type.  
Area, 254 sq. in.

### AUGERS

Semi-steel, front or propelling section, chilled.  
Total length, auger section, 44", augers fast.  
Diameter rear auger, 14".  
Diameter standard lip, 12" (special 8", 10", 14").

### FORCE FEED

Single type.  
Gears, 12" x 3½", and 16" x 3½"

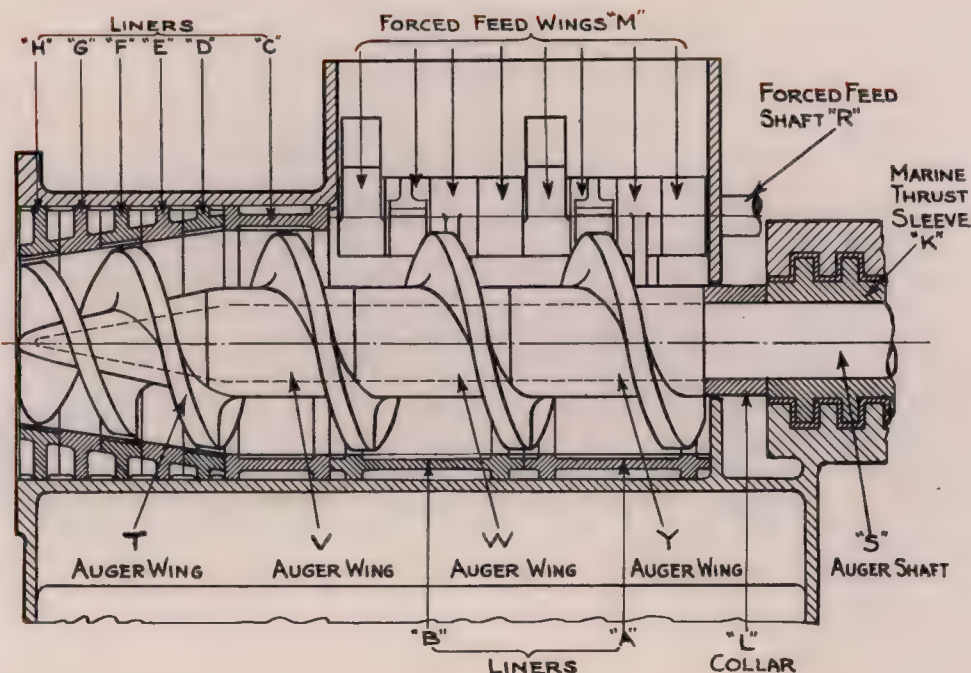
### PULLEY

Double disc type, 42" x 16".  
Speed, 100 to 200 R. P. M.  
Average, 150.

### LINERS

Front tapered, (5 in each machine).  
Back straight, (3 in each machine).  
Approximate weight, 14,000 lbs.





DETAIL SHOWING AUGER AND LINER MECHANISM

**T**HE TYPE 435 Auger Machine typifies the greatest single advance made in auger machine design in the last fifty years.

It is composed of but one main casting, to which is fitted an upper concave and bearing caps, a design similar to that found in large electric generators. It, therefore, has less parts to repair and maintain than any other type of auger machine made.

Its design shows strength, beauty of line and speed—the “thoroughbred” of auger machines.

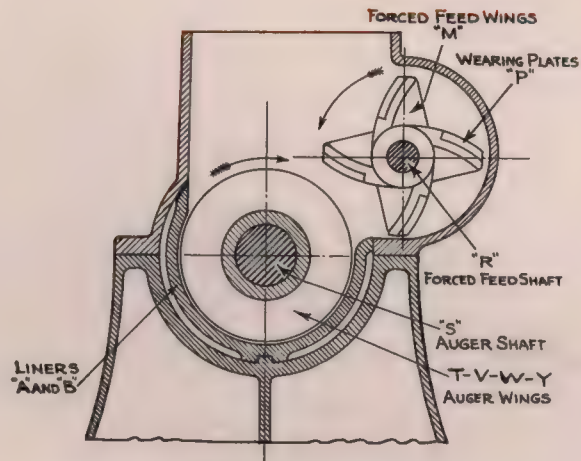
**FRAME**—Made in one piece with outboard bearing cast to the frame, insuring great strength and perfect alignment. That part of the frame connecting the gear basin with the outboard bearing is heavily ribbed and so designed as to be free of cooling strains in the metal.

**GEARS**—The machine is driven with but two gears. As a standard it is fitted with cast steel pinion and semi-steel gear, but when desired both gears are made of steel with cut teeth. In all cases though both pinion and gear run in oil, the gear case being dust proof. Both gears have 9" face, with a gear ratio of 3.93 to 1.



**THRUSTS**—The main auger shaft has two thrusts, a large marine thrust next to the concave and a floating thrust at rear of auger shaft. Either one is capable of taking the total thrust of the machine in case that one thru lack of lubrication should grow warm. Both with an area of 254 sq. in. present more thrust area than any other similar sized auger machine.

**BEARINGS**—All bearings are chain or ring oiled, driving shaft bearings are 14" long—auger shaft 16" long. Compare these with other auger machine bearings.



CROSS SECTION SHOWING HOPPER AND FORCE FEED

**SHAFTS**—The auger shaft is made of forged steel 5" in diameter and round. The driving shaft is made of cold rolled stock 3-11/16" in diameter. The force feed shaft is 2-7/16" in diameter.

**AUGERS**—These are made of a special hard and tough mixture of iron and steel. Augers are of continuous screw type, front auger being chilled very hard, it outlasting ordinary augers many times. The auger is high pitched, open, and very fast. In fact the capacity of the machine is really only limited by the speed of the driving pulley. Back augers are as a standard 14" in diameter. Standard auger lip 12" diameter, other auger lips 8", 10", 14" when desired.

**LINERS**—These are made of a special hard mixture of steel and iron, the front liners being tapered to fit the auger taper and so arranged as to allow a take up between the auger and liners as the auger wears. They are ribbed at right angles to the flow of the clay. The augers are self-contained in the main frame of the machine, the die and die extension being the only projection from the main machine frame.

**FORCE FEED**—This is of the single type, being most positive, the hopper opening for clay being of large area.

**PULLEY**—International's new type of friction clutch pulley is fitted to the machine, the clutch mechanism being of the double disc type, 42" x 16" pulley. Speed 100 to 200 R. P. M.

**CAPACITY—Brick**—The standard auger machine is normally rated at 4 to 10 thousand standard building brick per hour, but the strength of the machine is such that many clays can be run in larger capacities.

**Hollow-ware**—Owing to its relative smaller power consumption, its close fitting liners and fast auger, it is an ideal machine for hollow-ware and drain tile. Normal capacity 100 to 150 tons.



# INTERNATIONAL

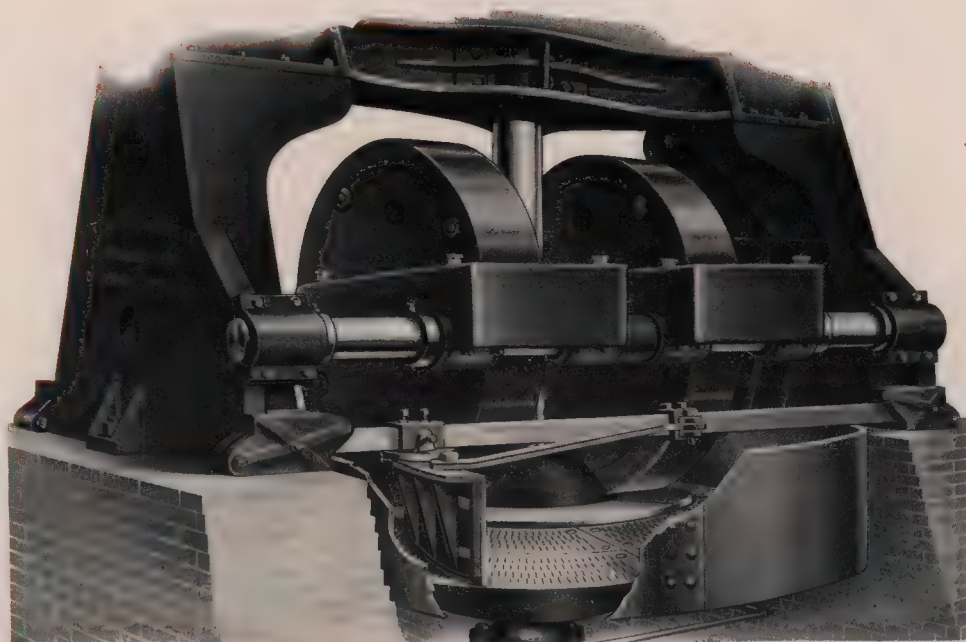
Nine Foot Low Frame



Heavy Duty Dry Pan

NOVEMBER 1917  
SUPERSEDING

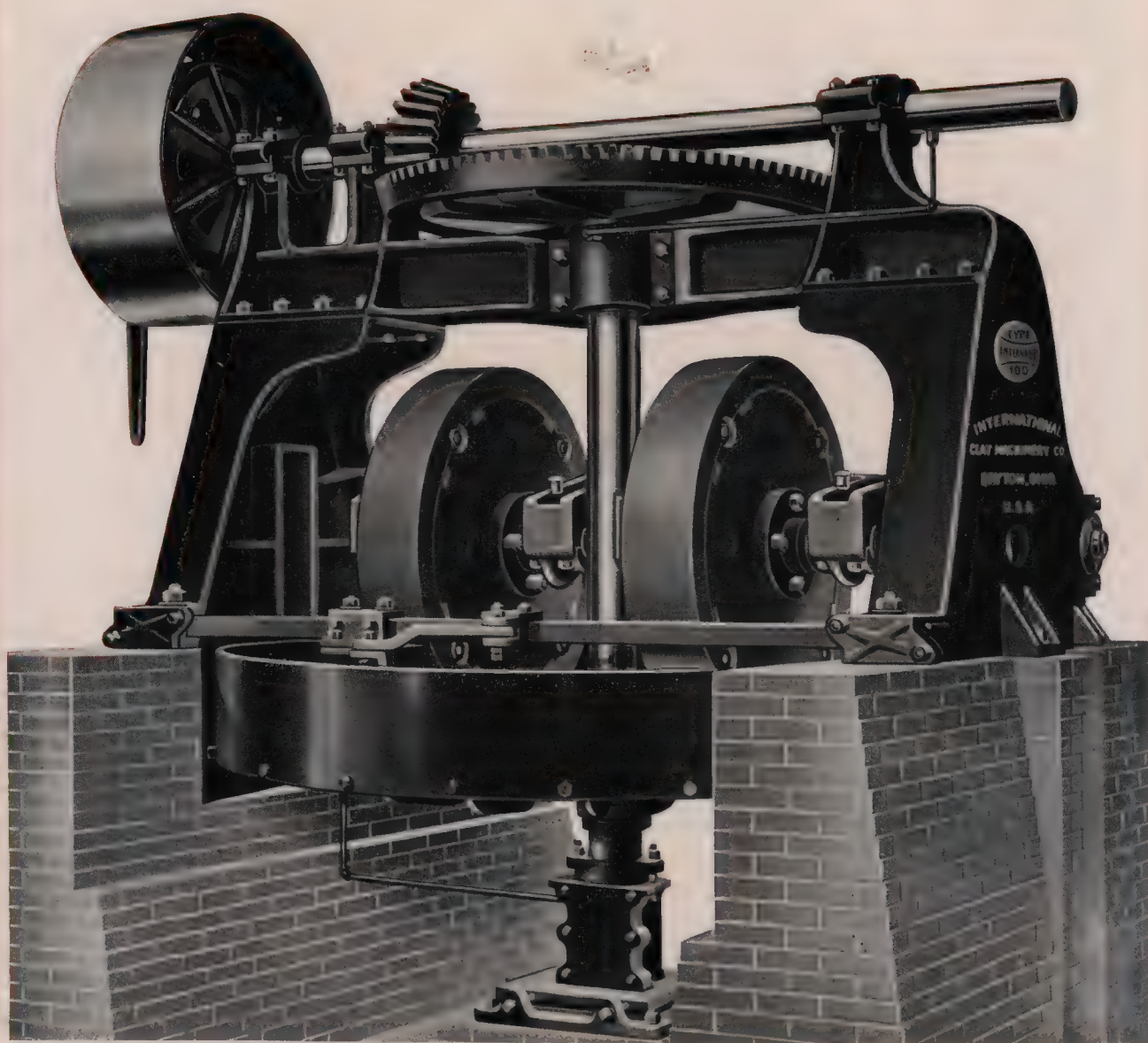
BULLETIN No. 36  
BULLETIN No. 1



DETAILS  
OF THE  
INDEPENDENT MULLER PAN  
TYPE 100

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





**International Type 100  
Low Frame Dry Pan**

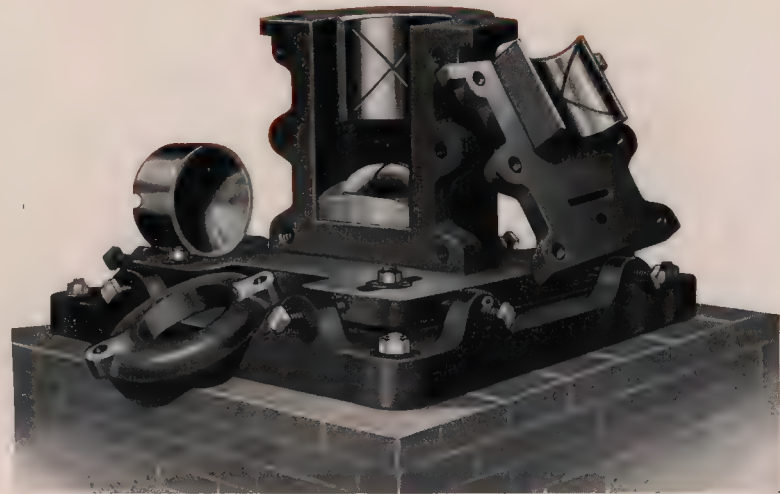


## International Low Frame Heavy Duty Dry Pans

**T**HE Low Frame type of Pan, most authorities agree, is more efficient in practical clayworking than the high frame type.

Low frames give rigidity, have a low center of gravity, therefore, show less vibration.

### TYPE 100 Heavy Duty Dry Pans

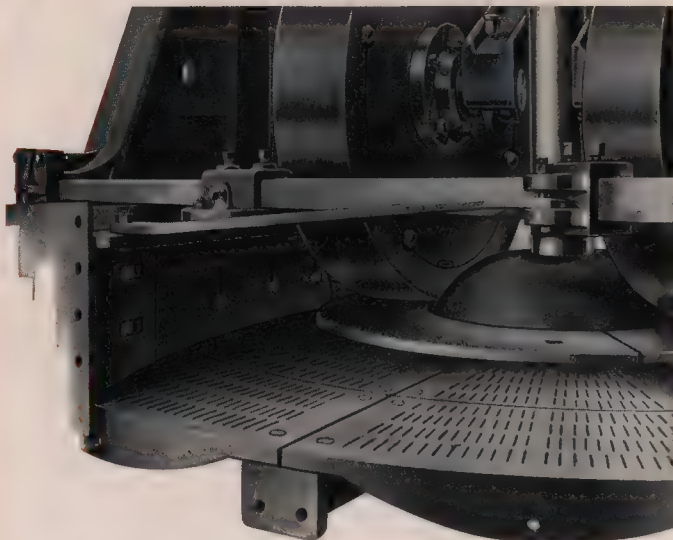


THE INTERNATIONAL STEP BEARING

This Pan we believe to be the most efficient and scientifically designed 9 ft. pan on the market.

## WHY?

Not only is the center of gravity low, but each "A" frame is bolted to the foundation at three points in triangular alignment, which construction gives added rigidity to the whole frame.



THE SPLIT SCREEN PLATE AND ELEVATED  
WEARING PLATE

TYPE 100

All three horizontal bearings are rigid on the cross rail, two grouped for pulley support, there being no outside brackets to vibrate loose and crystalize the driving shaft.

The step is radial in design, giving a frictionless bearing to the main shaft, no matter what the inclination of the shaft or the settle of the foundation.

"The proof of the pudding" lies in the fact that many of these steps have been applied to other makes of pans.

The mullers are placed close to the central shaft, giving the largest possible area of screening surface, and the screen plates themselves are split in two parts, which construction saves in repair bills.



The bottom disc is belled out where it encircles the main shaft, which causes all clay entering the center of the pan to immediately fall under the mullers:

The wearing plates or muller tracks are placed an inch above the screen plates, this saving much breakage of screen plates due to large pieces of shale, etc.

All wearing surfaces are extremely hard, a special mixture of metal being used for this purpose.

Heavy duty mullers placed independent of each other, allow the full weight of each muller on the material to be ground, furthermore, does away with the tendency of the mullers to sag toward each other.

### SPECIFICATIONS

Length over all, 15' 6"

Height over all, 12' 3"

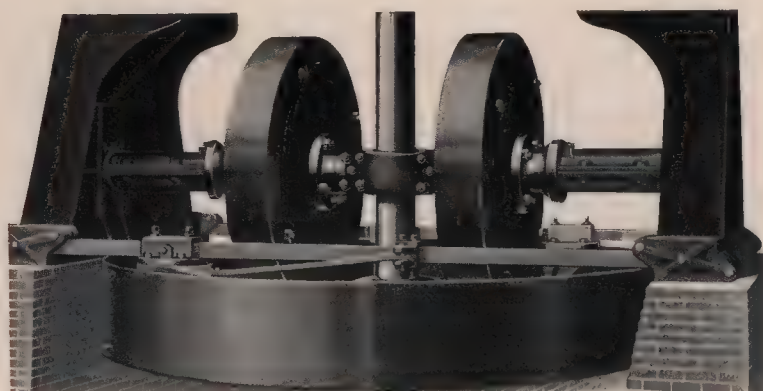
Width over all, 9' 6"

Height above rim, 8' 1"

Mullers, 52" diameter, 10" or 12" face.

Pulley 48" diameter by 16" face.

R P M of pulley, 150.



YOKED MULLERS  
TYPE 110

### TYPE 110 HEAVY DUTY DRY PAN

This pan has the same effective design and specifications as the type 100 Heavy Duty Pan, it differing from the latter pan only in the fact that the mullers are of the well known yoke type, not independent of each other.

"International Service" presents both pans as the acme of modern design for heavy duty and high capacity work.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

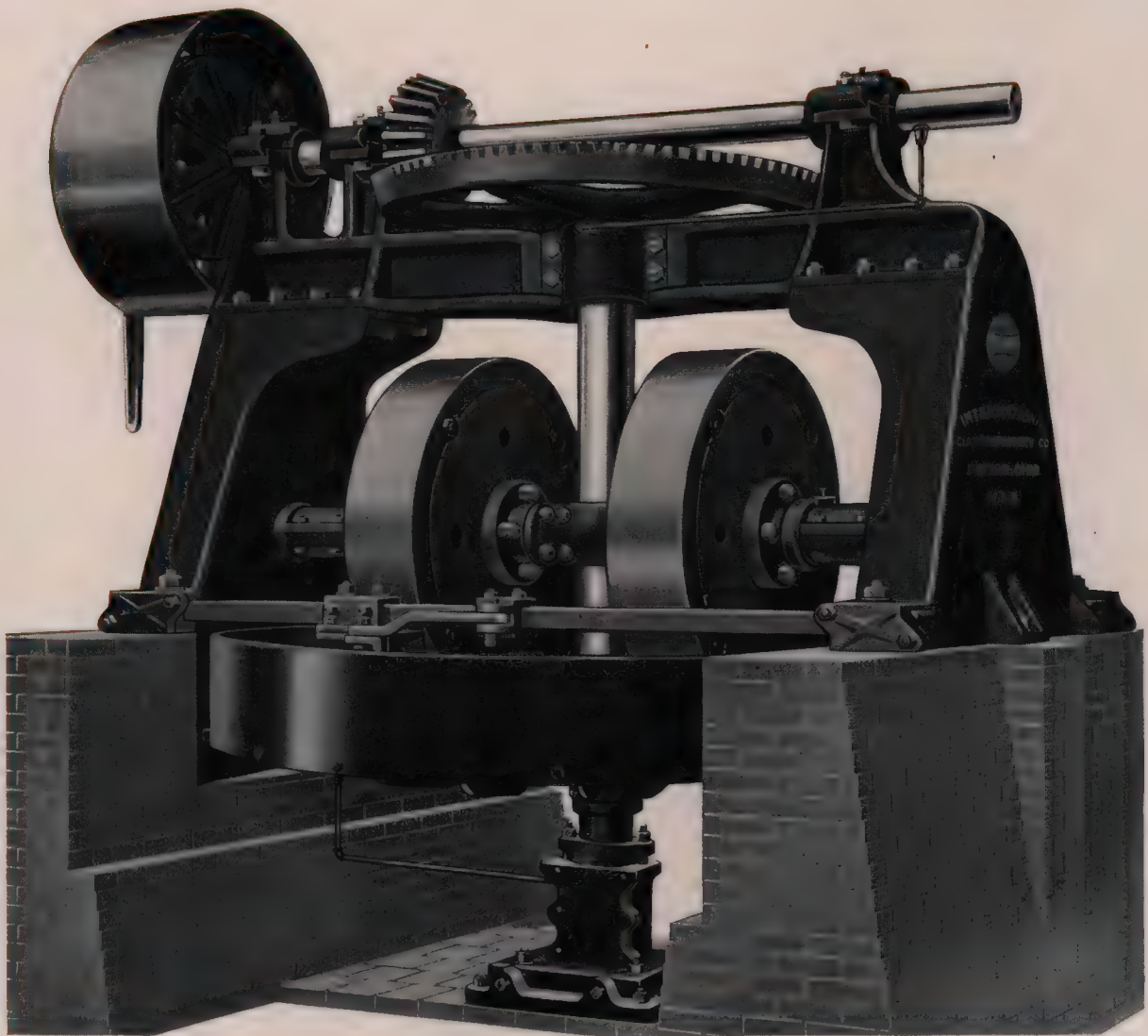
Nine Foot Standard



Low Frame Dry Pan

JANUARY 1918

BULLETIN No. 37



INTERNATIONAL TYPE 115 LOW FRAME DRY PAN

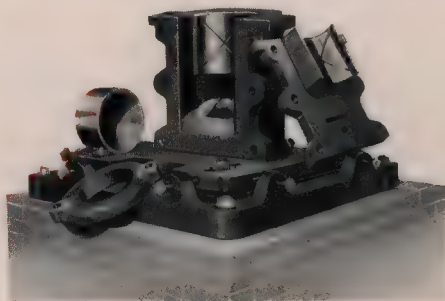
INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## Type 115 Low Frame Dry Pan

**L**OW FRAMES give rigidity and a low center of gravity, therefore show less vibration. Hence, most authorities agree that the low frame type of pan is more efficient in practical clayworking than the high frame type.

Not only is the center of gravity low, but each "A" frame is bolted to the foundation at three points in triangular alignment, which construction gives added rigidity to the whole frame.



DETAIL OF STEP BEARING

All three horizontal bearings are rigid on the cross rail, two grouped for pulley support, there being no outside brackets to vibrate loose and crystallize the shaft.

The mullers are placed close to the central shaft, giving the largest possible area of screening surface.

The step is radial in design, giving a frictionless bearing to the main shaft no matter what the inclination of the shaft or the settle of the foundation.

"The proof of the pudding" lies in the fact that many of these steps have been applied to other makes of pans.

The wearing plates or muller tracks are placed an inch above the screen plates, and experience teaches us that this construction saves much breaking of screen plates due to large pieces of shale, rock, etc.

All wearing surfaces are exceedingly hard, a special mixture of metal being used for this purpose.

The bottom disc is belled out where it encircles the main shaft, and this construction causes all clay entering the center of the pan to immediately fall under the mullers.

Type No. 115 Low Frame Pan is doing most excellent work on many wire cut, dry press and soft mud plants.

Where is there a Standard Dry Pan so well designed for heavy duty service and high capacity?

### SPECIFICATIONS:

Length over all, 15' 6"	Height over all, 12' 3"	Width over all, 9' 6"	Height above rim, 8' 1"
Standard Mullers, 50" dia. x 10" face		RPM of Pulley, 150, 48" dia. x 14" or 16" face	

**INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.**



# INTERNATIONAL

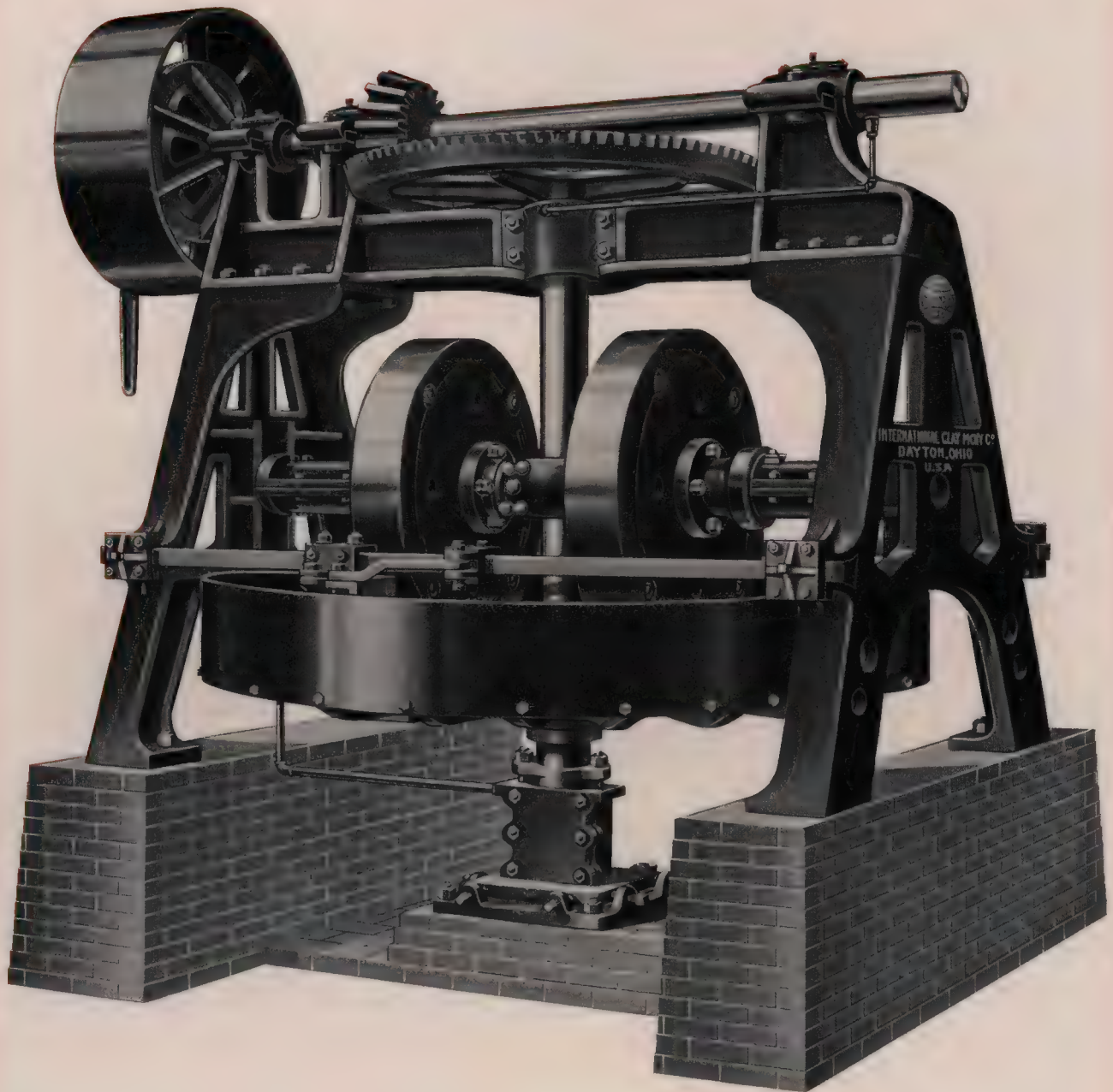
Nine-Foot



Standard Dry Pan

NOVEMBER 1917

BULLETIN No. 40



INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.

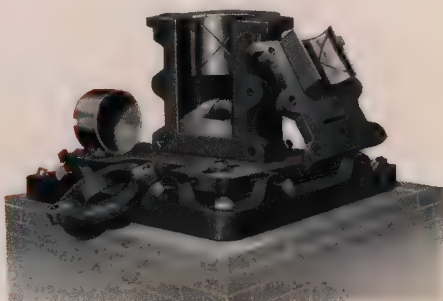


## Type 130 9-Ft. Dry Pan

**T**YPE 130 9-ft. Pan has been designed for those clay workers whose material is such that it does not present great difficulties in crushing.

Like International Heavy Duty Pans, the mullers are placed close to the central shaft, giving the largest possible area of screening surface.

The step is also similar to that used on our Heavy Duty Pans, it being radial in design, giving a frictionless bearing to the main shaft, no matter what the inclination of the shaft or the settle of the foundation.



DETAIL OF STEP BEARING

"The proof of the pudding" lies in the fact that many of these steps have been applied to other makes of pans.

The bottom disc is belled out where it encircles the main shaft. This causes all clay entering the center of the pan to immediately fall under the mullers.

The wearing plates or muller tracks are placed an inch above the screen plates, this saving much breakage of screen plates due to large pieces of shale, etc.

All wearing surfaces are exceedingly hard, a special mixture of metal being used for this purpose.

The horizontal driving shaft is extended about 18" on the side opposite from the friction clutch, in order that it may take a pulley for elevator or conveyor driving.

### SPECIFICATIONS:

Length over all, 15' 2". Width over all, 9' 2". Height over all, 12' 2". Height above rim, 8' 10".  
Standard Mullers, 48" dia. x 9" face. Pulley, 42" dia. x 14" face, R P M, 116.

## Type 135 Standard 9-Ft. Dry Pan

This is similar to Type 130 with the exception that it is fitted with independent mullers. This type of construction allows the full weight of each muller on the material to be ground.



# INTERNATIONAL

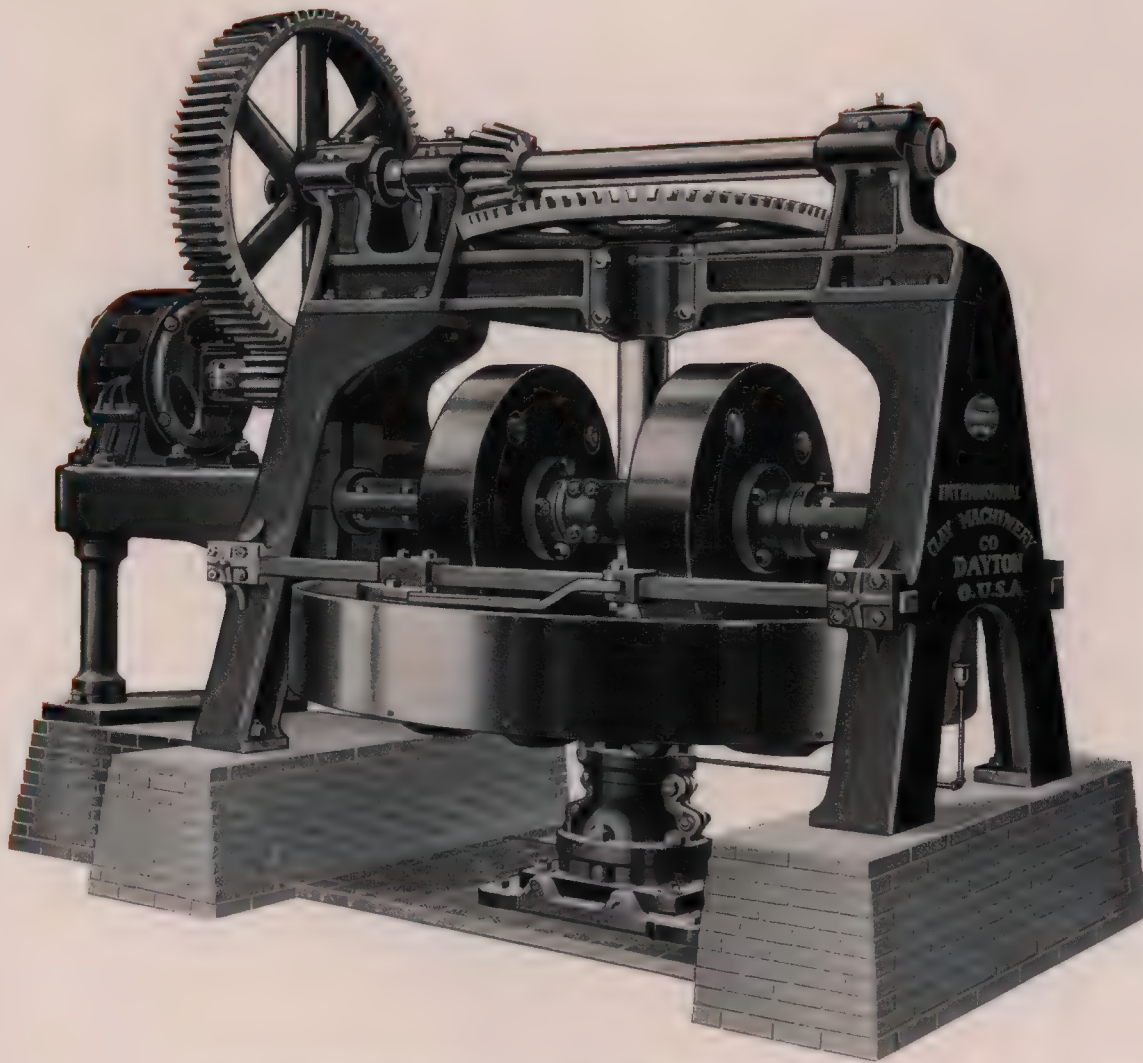
Grinding



Pans

NOVEMBER 1917

BULLETIN No. 43



INTERNATIONAL TYPE 146, 7-FOOT GRINDING PAN  
SHOWING DIRECT CONNECTED MOTOR

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.

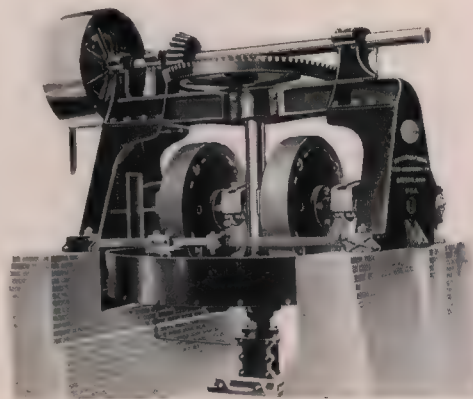


**I**NTERNATIONAL Pans in many foundries are saving daily from \$4.00 to \$6.00 per barrel on core oil and from 50% to 75% in sand.

Other pans are grinding sand, the hardest rock; mixing furnace fettling, core sand, coal dust, and facing sand.

All size pans are made for either belt, chain, or direct motor drive.

Notice the method of attaching the motor for chain and direct motor drive. It gives rigidity to the installation and does away with the vibration brought about in pans where the motor is placed on top of the cross rail.



Type 100, 9-Ft. Low Frame Grinding Pan

In some cases International Grinding Pans are fitted with extra solid plates, in place of screen plates. The pans then do both grinding and mixing work, in fact they are two pans in one.

International Pans are designed for heavy duty service, and both grinding and mixing types are built for all capacities of foundry or other grinding work.

### SPECIFICATIONS:

#### Types 100 Grinding and 155 Mixing, 9-Ft. Low Frame Heavy Duty Pans

Length over all, 15' 6"	Width over all, 9' 6"	Type 100, Mullers, 52"x 10" or 12"
Height over all, 12' 3"	Pulley, 48"x 16" RPM, 150	Type 155, Mullers, 50"x 10"
Approximate shipping weight, 37,000 lbs.		

#### Types 140 Grinding and 175 Mixing, 8-Ft. Pans

Length over all, 8'	Width over all, 13'	Type 140, Mullers, 46"x 8"
Height over all, 10' 9"	Pulley, 42"x 12", RPM, 125	Type 175, Mullers, 48"x 6 1/4"
Approximate shipping weight, 24,000 lbs.		

#### Types 145 and 146 Grinding, with Motor Stand, and 180 Mixing, 7-Ft. Pans

Length over all, 7'	Width over all, 12' 6"	Types 145 and 146, Mullers, 38"x 7"
Height over all, 9' 9"	Pulley, 42"x 12", RPM, 125	Type 180, Mullers, 40"x 5"
Approximate shipping weight, 19,000 lbs.		

#### Types 150 Grinding and 185 Mixing, 5-Ft. Pans

Length over all, 5'	Width over all, 9'	Type 150, Mullers, 34"x 5 1/2"
Height over all, 8' 7"	Pulley, 36"x 10", RPM, 132	Type 185, Mullers, 36"x 4 1/2"
Approximate shipping weight, 10,500 lbs.		



# INTERNATIONAL

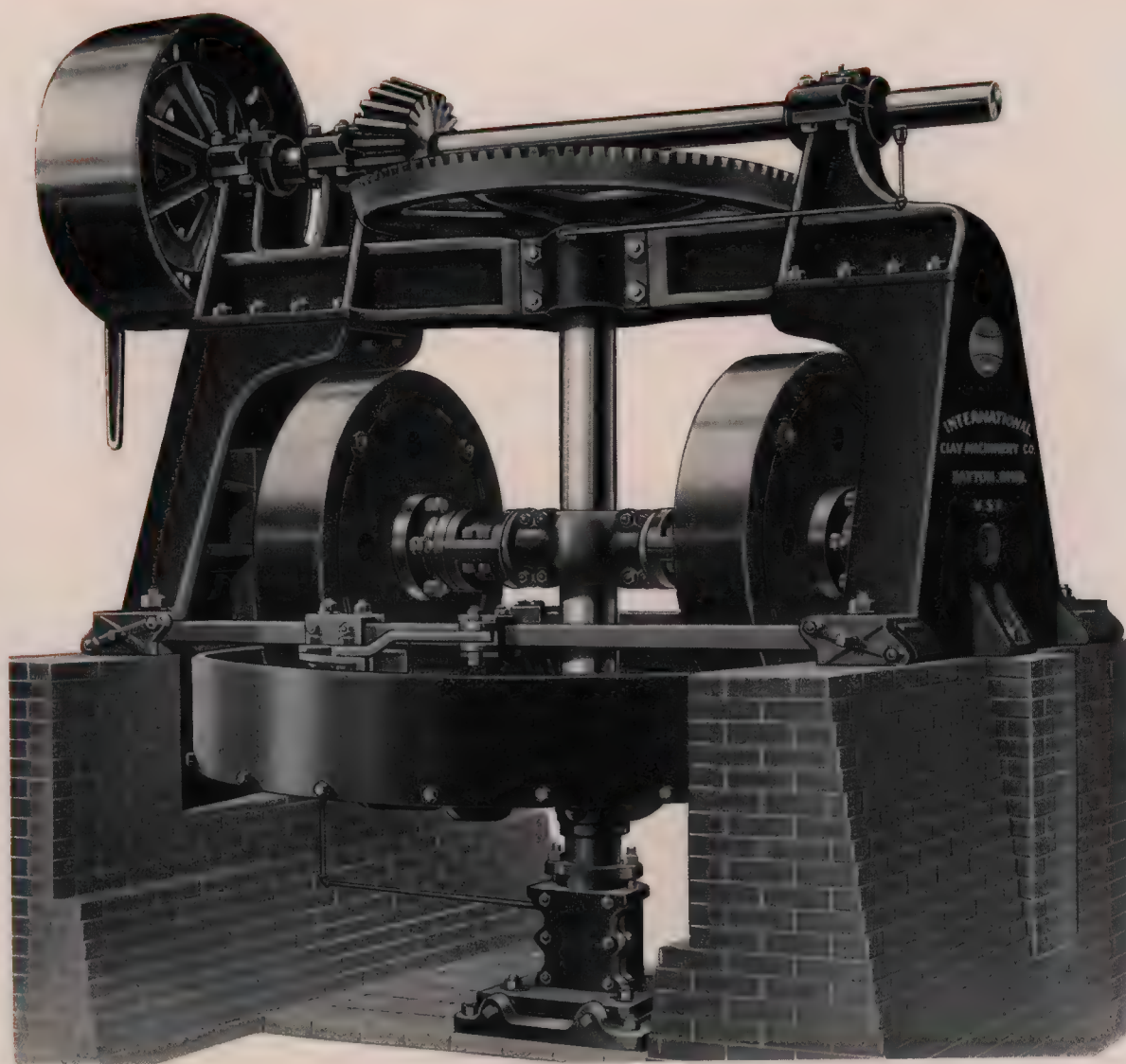
Nine Foot Low Frame



Heavy Duty Wet Pans

JANUARY 1918

BULLETIN No. 49



INTERNATIONAL TYPE 160 LOW FRAME HEAVY DUTY WET PAN

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Low Frame Heavy Duty Wet Pans

THE Low Frame Type of Pan, most authorities agree, is more efficient in practical clayworking than the high-frame type.

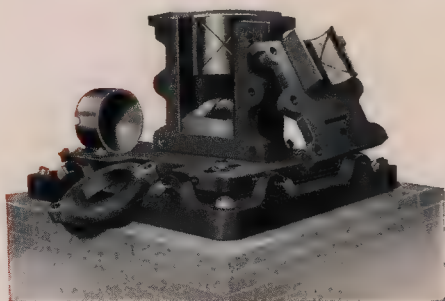
Low frames give more rigidity, have a low center of gravity, therefore show less vibration.

### Type 160 Heavy Duty Wet Pan

This Pan we believe to be the most efficient and scientifically designed 9 foot Pan on the market.

#### Why?

Not only is the center of gravity low, but each "A" frame is bolted to the foundation at three points in triangular alignment, which construction gives added rigidity to the whole frame.



DETAIL OF STEP BEARING

All three horizontal bearings are rigid on the cross rail, two grouped for pulley support, there being no outside brackets to vibrate loose and crystallize the driving shaft.

The step is radial in design, giving a frictionless bearing to the main shaft no matter what the inclination of the shaft, or the settle of the foundation.

"The proof of the pudding" lies in the fact that many of these steps have been applied to other makes of pans.

All wearing surfaces are exceedingly hard, a special mixture of metal being used for this purpose.

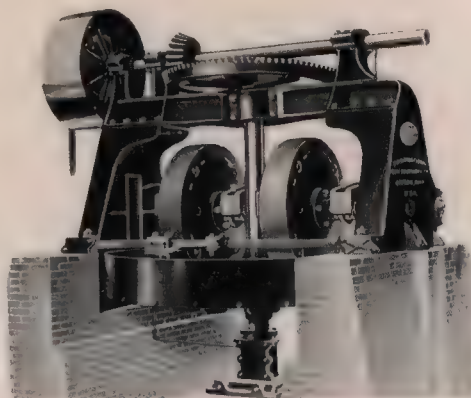
This Pan is especially designed for work requiring stamina and endurance in a Pan, as in the manufacture of silica brick, magnesite brick, and high flint brick.

#### SPECIFICATIONS:

Length over all, 15' 6" Height over all, 12' 3" Width over all, 9' 6"  
Height over rim, 8' 1" Standard Mullers, 52" dia. x 10" face  
RPM of Pulley, 150, 48" dia. x 16" face

### Type 155 Heavy Duty Wet Pan

This Pan has the same effective design and specifications as the Type 160 Wet Pan, with the exception that the mullers are of the Independent Type, similar in construction to Type 100 Heavy Duty Dry Pan.



Type 155 Heavy Duty Wet Pan



# INTERNATIONAL

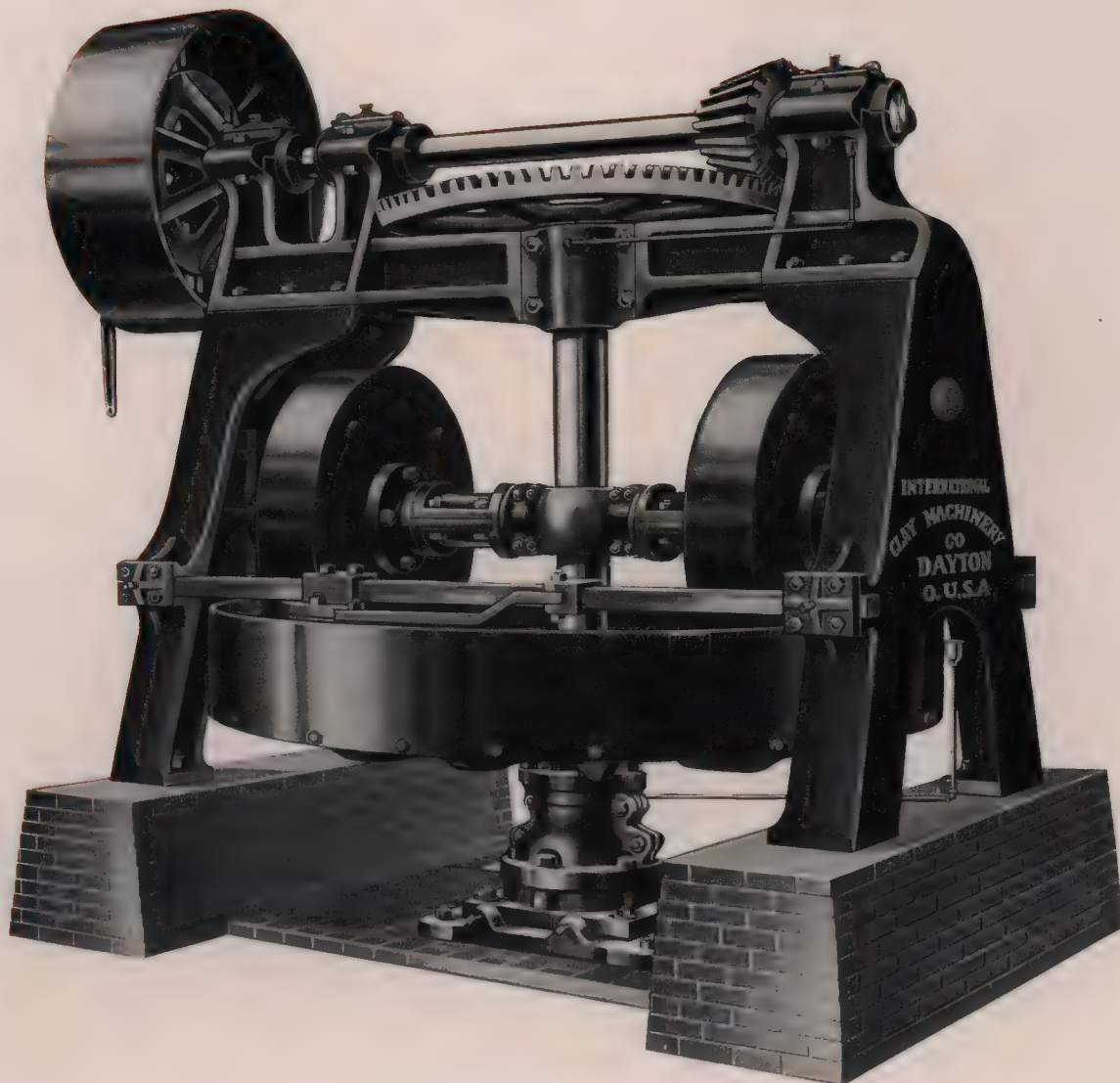
8, 7, & 5-Foot



Wet Pans

NOVEMBER 1917

BULLETIN No. 52



INTERNATIONAL TYPE 180  
7-FOOT WET PAN

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International 8, 7, and 5-Ft. Wet Pans

**I**NTERNATIONAL 8, 7, and 5-Ft. Wet Pans have been designed for the preparation of clays requiring excellent pugging, as well as the mixing of clay, sand, and other material in medium and small capacities.

All pans are built with heavy frames, accurately joined together and fitted with a three-bearing cross rail, similar to that used on International 9-ft. pans.

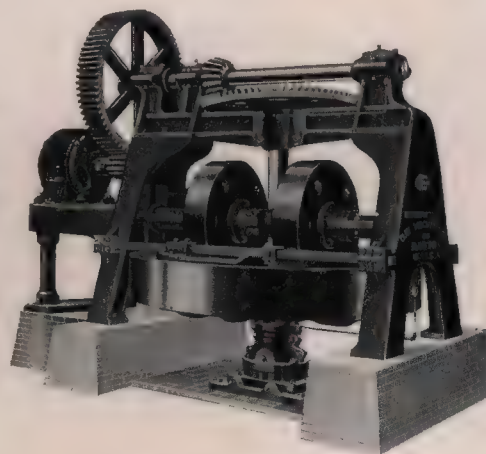
The step for the 8-ft. pan is the same as the one used on International 9-ft. pans, while the 7-ft. and 5-ft. step bearings are of the floating bronze disc type having an ample area.

The main shaft on all three pans is forged steel, and all pans are equipped with an International new type friction clutch pulley.

The 8-ft. pan is sometimes fitted with Independent Mullers, built on the 9-ft. design.

In some cases where the pans are to be used for mixing sand, coal dust, and other granular substances, also with some clays, they are equipped with direct motor drive in accordance with cut shown.

The Emptier recommended for Types 175, 180, and 185 Wet Pans is of the hand swivel design.



Pan with Motor Stand

### SPECIFICATIONS:

#### Type 175, 8-Ft. Wet Pan

Length over all, 8'	Width over all, 13'	Height over all, 10' 9"	Standard mullers, 48" x 6 1/4"
Pulley, 42" x 12", RPM, 125		Approximate shipping weight, 24,000 lbs.	

#### Type 180, 7-Ft. Wet Pan

Length over all, 7'	Width over all, 12' 6"	Height over all, 9' 9"	Standard mullers, 40" x 5"
Pulley, 42" x 12", RPM, 125		Approximate shipping weight, 19,000 lbs.	

#### Type 185, 5-Ft. Wet Pan

Length over all, 5'	Width over all, 9'	Height over all, 8' 7"	Standard mullers, 34" x 5 1/2"
Pulleys, 36" x 10", RPM, 132		Approximate shipping weight, 10,500 lbs.	

The above muller sizes may be subject to change in accordance with the material to be worked.

**INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.**



# INTERNATIONAL

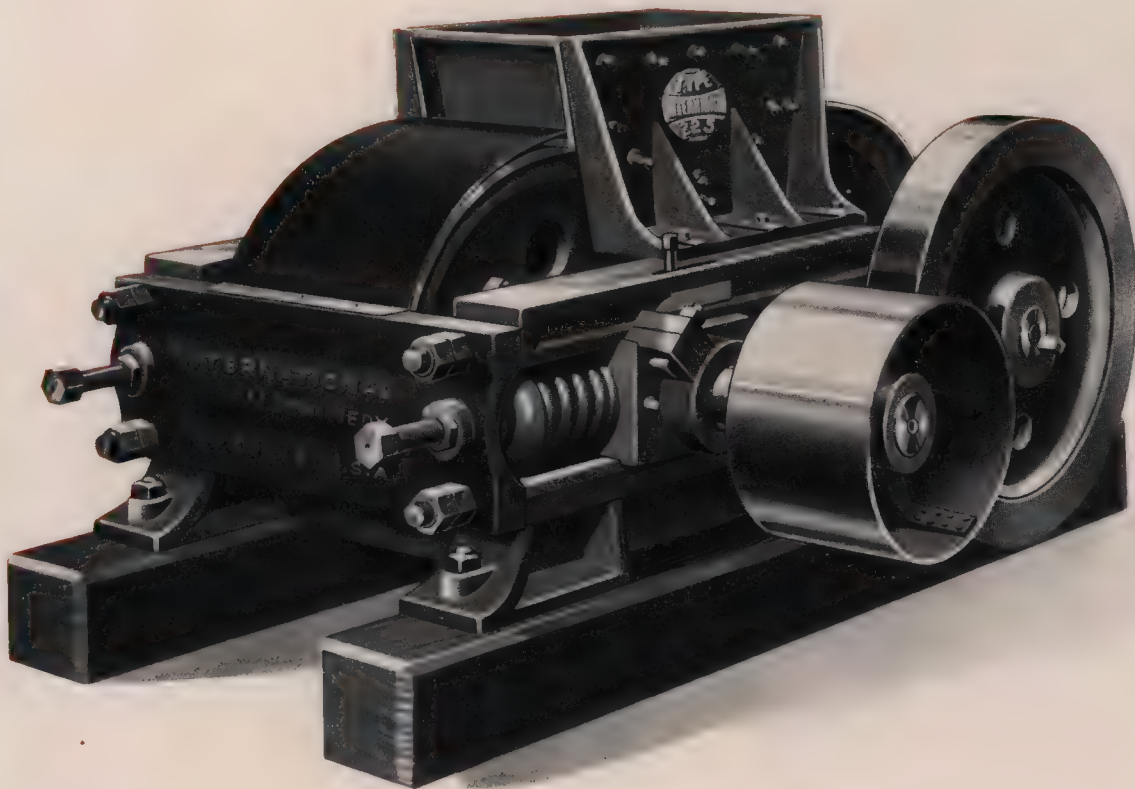
Type 225 Equal



Roll Crusher

SEPTEMBER 1917

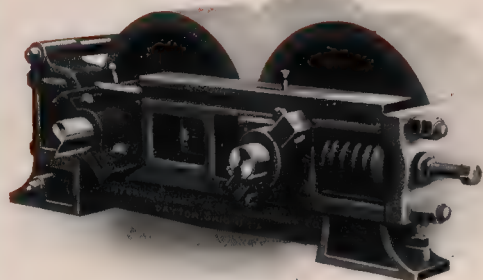
BULLETIN No. 56



International Type 225  
Equal Roll Crusher

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





DETAIL OF FRAME AND  
BEARINGS

**T**YPE 225 Crusher is an extremely heavy roll crusher with large diameter rolls for use in fine grinding or high capacity work.

Not only is it efficient in the pulverization of pebbly clay, but finds use in the crushing of sand rock, coal, soft shales, and many other substances.

The frame work is of heavy girder construction secured by bolts extending entirely through the side frames.

The bearings for one roll are rigid in the side frames, while the adjustable roll has sliding bearings held firmly by large springs.

These springs allow the passage of hard substances, like railroad spikes, etc., that would otherwise work injury to the machine.

Each bearing is fitted with an oil reservoir containing sufficient oil for several days run.

Each roll is fitted with chilled replaceable wearing surfaces ground to a true circle and balanced, the surface of the rolls being as hard as they can possibly be made.

Note the scraper arrangement. This scheme is very efficient in holding the scrapers to the rolls. Notice also the sides of the hopper are adjustable to the rolls.

This machine, we believe, to be the most efficient and best built roll crusher on the market.

## SPECIFICATIONS

Length over all, 7'

Width over all, 6'

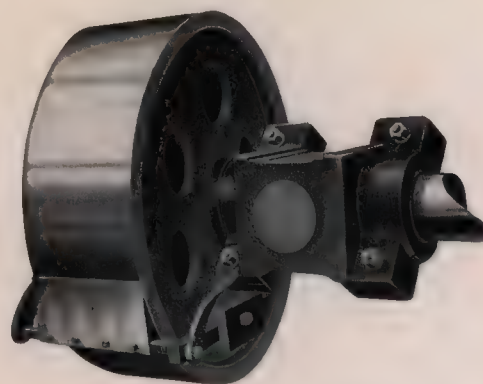
Height over all, 3' 6"

Size of rolls: 30" diameter by 14" face

Slow roll pulley: 16" diameter by 10" face. RPM, 400

Fast roll pulley: 18" diameter by 14" face. RPM, 500

Approximate shipping weight, 8,500 pounds.



SHOWING SCRAPER  
ARRANGEMENT

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

Types 200, 205, 210



Disintegrators

OCTOBER 1917

BULLETIN No. 57



International Type 210  
Disintegrator

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.

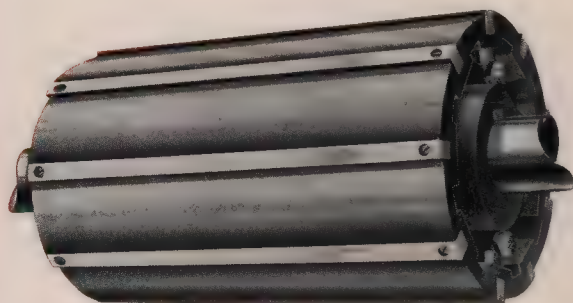


**I**NTERNATIONAL Disintegrators, while built for heavy duty work, are yet most simple in construction with few working parts.

All fast rolls are of the insertable knife construction, these cutting knives being separate from the roll and removable. When worn they can be shimmed under and raised to sufficient height to perform new service, and by reversing them, a new cutting edge is presented for work, this reversible construction being most efficient.

International Disintegrators are built with a solid cast iron base, all bearings being large, equipped with oil reservoirs, each reservoir being provided with a dust proof cap.

## SPECIFICATIONS



INSERTABLE KNIFE ROLL

### International Type 200 Disintegrator

Feed roll, 28" dia. by 25" face.

Cutting roll, 16" dia. by 25" face.

Shafts, 4 $\frac{1}{8}$ "

Bearings, 15" long.

Feed roll driving pulley, 30" dia. by 10" face,  
R P M, 100 to 125.

Cutting roll driving pulley, 18" dia. by 14" face,  
R P M, 700 to 800.

Machine regularly equipped with fly wheel.

Length over all, 6'

Width over all, 8' 6"

Height over all, 3' 8"

Capacity, 6,000 to 20,000 standard brick per hour.

### International Type 205 Disintegrator

Feed roll, 24" dia. by 18" face.

Cutting roll, 14" dia. by 18" face.

Shafts, 2 $\frac{1}{8}$ " dia., with 12" bearings.

Feed roll driving pulley, 24" dia. by 8" face,  
R P M, 125 to 150.

Cutting roll driving pulley, 14" dia. by 10" face,  
R P M, 750 to 800.

Length over all, 5'

Width over all, 5' 3"

Height over all, 3'

Capacity, 4,000 to 6,000 standard brick per hour.

### International Type 210 Disintegrator

Feed roll, 18" dia. by 14" face.

Cutting roll, 12" dia. by 14" face.

Shafts, 2 $\frac{1}{8}$ " dia., bearings 10" long.

Feed roll driving pulley, 24" dia. by 6" face,  
R P M, 125 to 150.

Cutting roll driving pulley, 12" dia. by 10" face,  
R P M, 800 to 1000.

Length over all, 4'

Width over all, 4' 8"

Height over all, 3'

Capacity, 1500 to 4000 standard brick per hour.

Types 205 and 210 Disintegrators can be furnished with fly wheel if desired.



# INTERNATIONAL

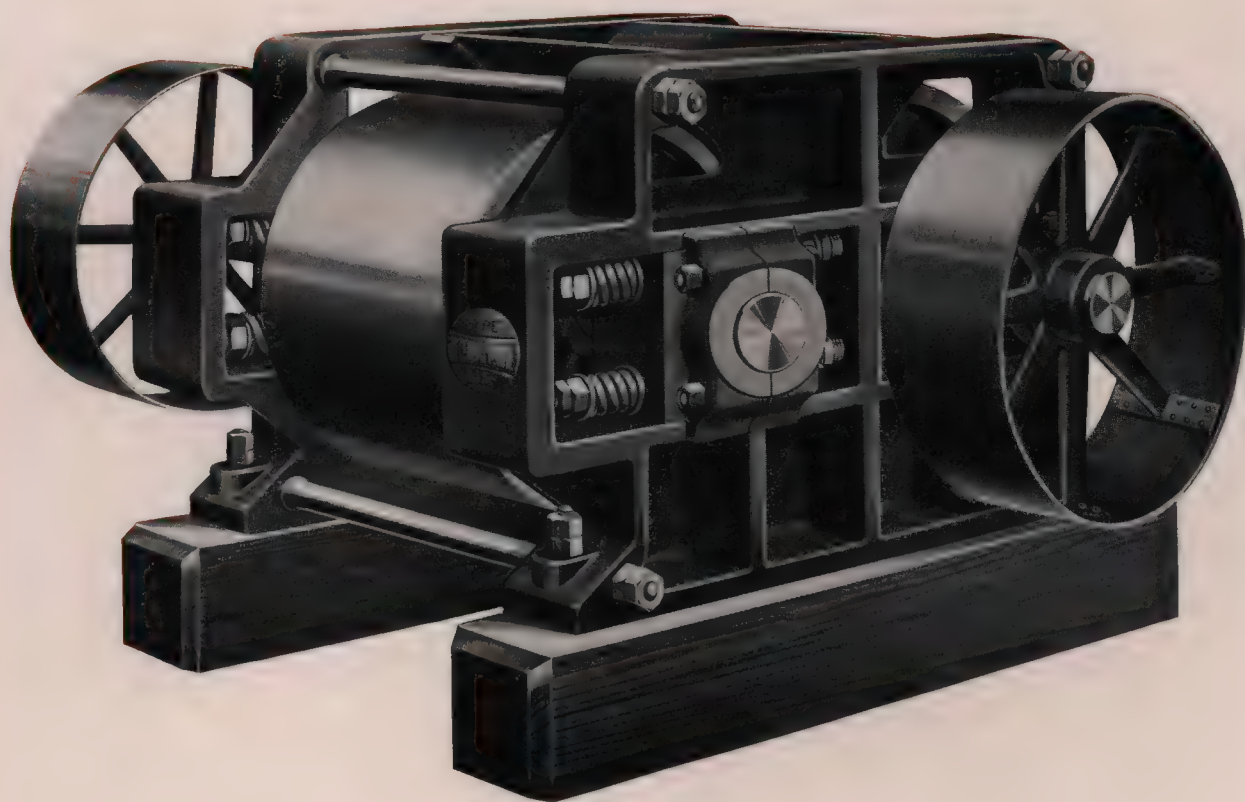
Smooth Roll



Crushers

APRIL, 1918

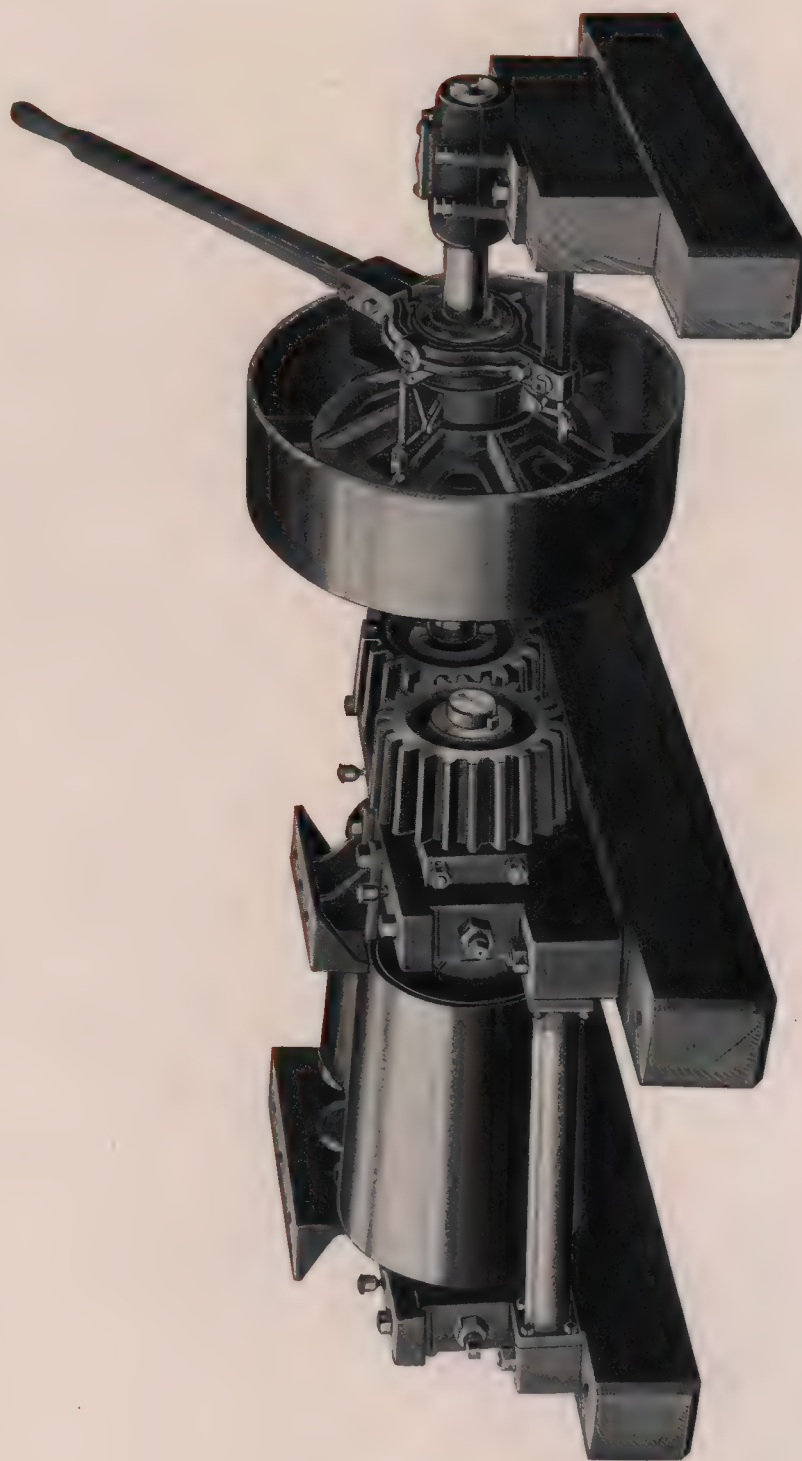
BULLETIN No. 58



International Types 215-240  
Smooth Roll Crushers

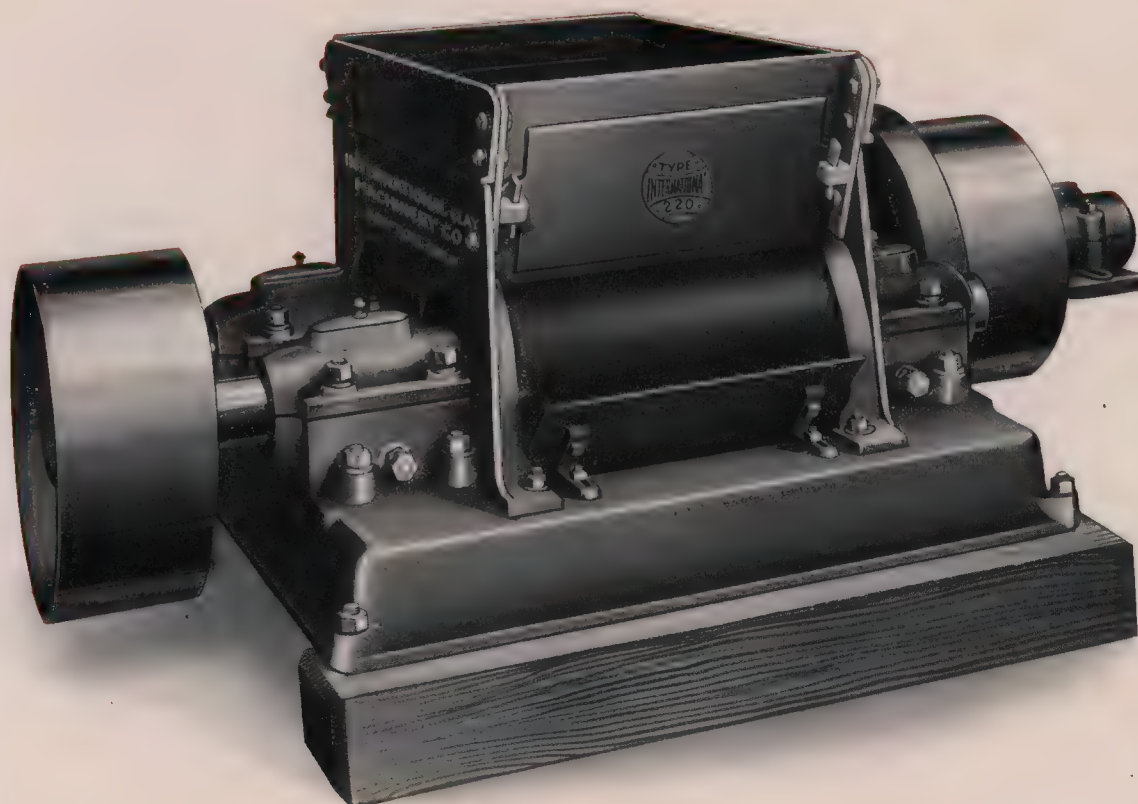
INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





International Type 230 Conical Roll Crusher





### International Type 220 Smooth Roll Crusher

Type 220 Smooth Roll Crusher has been designed for use on small and medium capacity yards wanting a good heavy rugged crusher at a reasonable cost.

The shafts are heavy, and the bearings are long, insuring rigidity and smooth running at all times.

The rolls are adjustable, and the scraper arrangement is of simple and efficient design.

The ruggedness and rigidity of this crusher is further accentuated by the heavy one piece base.

Specifications will be furnished on request.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Type 230 Conical Roll Crusher

Type 230 Conical Roll Crusher has been designated to remove troublesome boulders, as well as lime and quartz pebbles and any other hard substance from clays.

It is especially valuable in excluding lime rocks and pebbles which otherwise would be crushed with the clay and show up in both drying and burning.

The machine, through its conical shaped rolls, carries stones and pebbles to the end of the rolls, dumping them through a discharge orifice in the side frame, it being entirely a process of exclusion.

For special cases where large stones predominate and are in considerable quantities, one or both rolls may be fitted with a spiral thread.

A spiral roll has a tendency to increase the capacity of the stones thrown out where the stones are fairly large in size.

The machine is built with a heavy girder frame containing the adjustable boxes. The shafts are heavy and the gears are of wide face.

### SPECIFICATIONS

Length over all, 8' 6"  
Width over all, 5' 6"  
Height over all, 2' 8"  
Face of rolls, 24"

Diameter of large end of rolls, 20"  
Diameter of small end of rolls, 16"  
Pulley, 36" dia. by 10" face. 250 RPM.  
Approximate shipping weight, 6,500 lbs.

## Types 215 and 240 Smooth Roll Crushers

Types 215 and 240 Crushers are designed for every day use in clay grinding and are especially fitted for the pulverization of pebbles in clay.

The machines are built with heavy frames and well balanced rolls, the shafts being 3½" in diameter, while the rolls have very hard wearing surfaces.

One roll is stationary. The other is held firmly in place by heavy springs, which construction allows the passage of metal particles without injury to the rolls.

For extremely heavy duty work both types can be fitted with outboard bearings.

Both crushers are designed with an adjustable feed, which also acts as a spreader for the rolls.

### SPECIFICATIONS

#### TYPE 215

Rolls, 24" diameter by 24" face.  
Length over all, 8' 4"  
Width over all, 5'  
Height over all, 3' 2"  
Diameter of pulleys, 30" x 10"  
RPM, 250 to 300.  
Approximate shipping weight, 7000 lbs.

#### TYPE 240

Rolls 24" diameter by 18" face.  
Length over all, 8' 4"  
Width over all, 4' 6"  
Height over all, 3' 2"  
Diameter of pulley, 24" x 8"  
RPM, 250 to 300.  
Approximate shipping weight, 6,100 lbs.



# INTERNATIONAL

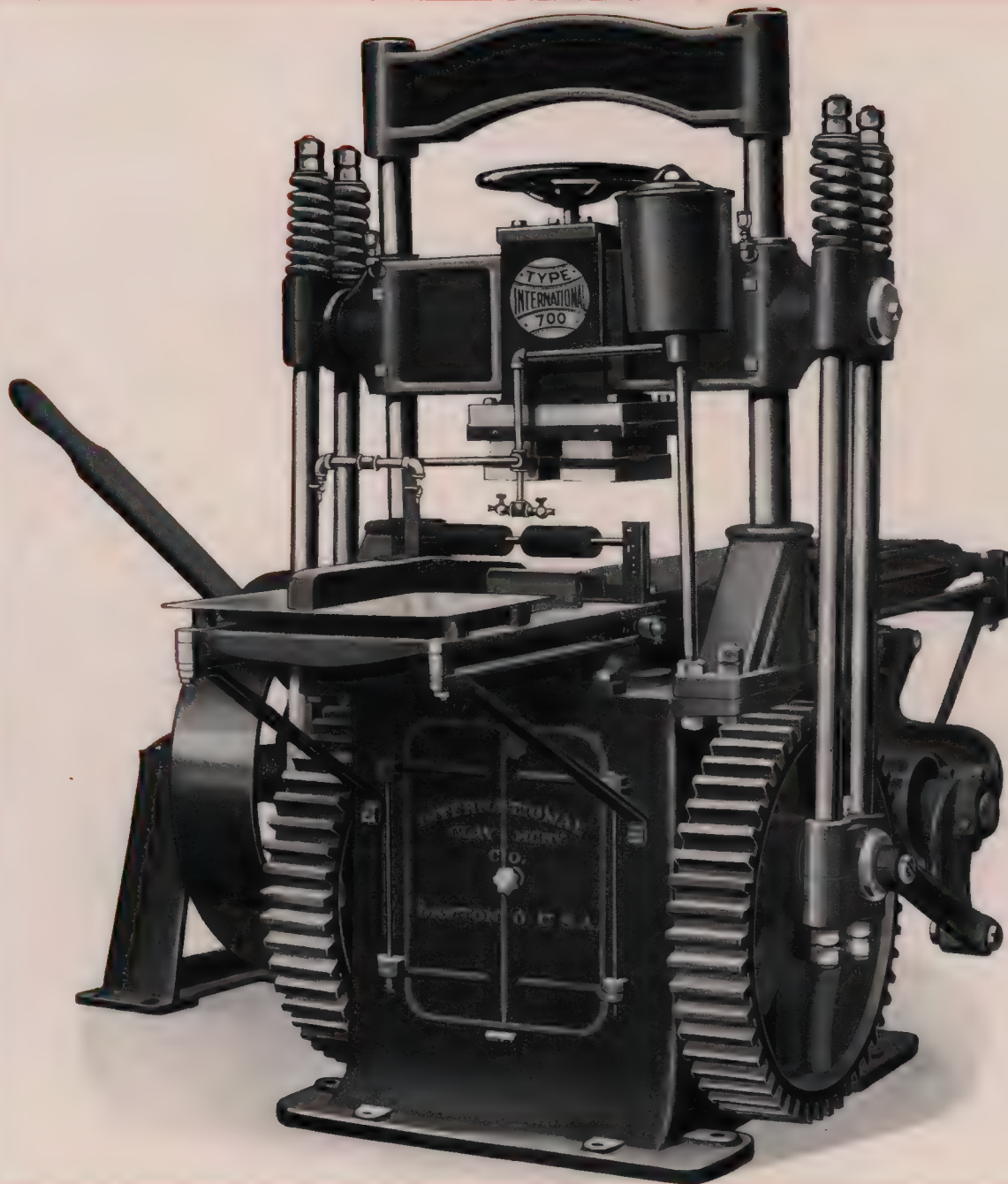
Type 700



Repress

NOVEMBER 1917

BULLETIN No. 71



INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



TYPE 700 Repress has been designed to repress paving block, face brick, fire brick and refractory shapes.

It is a two-shaft machine, thus simplifying both construction and maintenance.

The thickness of the brick and the pressure on the brick can be adjusted quicker on a Type 700 Press than on any other machine on the market.

Notice the solid cast iron base, this not only gives rigidity to the machine but encloses all working parts in a dust proof case.

Babbitting has been simplified by the use of special split brass bushings for the crank shaft bearings, while both shafts are heavy and the bearings are ample.

The machine is regularly furnished with a double steel lined, steam heated die. For large sized brick and special shapes single dies are furnished.

Need we say more than that one large brick manufacturer has thirteen of these presses in one plant.

#### SPECIFICATIONS:

Length over all, 8' 6"	Width over all, 6' 6"	Height over all, 7'	Base, 35''x 40''
Maximum double die, 6½''x 18''x 5''		Maximum single die, 14''x 18''x 5''	
Height from floor to top of mold box, 3' 5"		Pulley, 36''x 8'', RPM, 70	
Capacity, 1800 to 2200 standard brick per hour		Approximate shipping weight, 7000 lbs.	



# INTERNATIONAL

Hand



Represses

NOVEMBER 1917

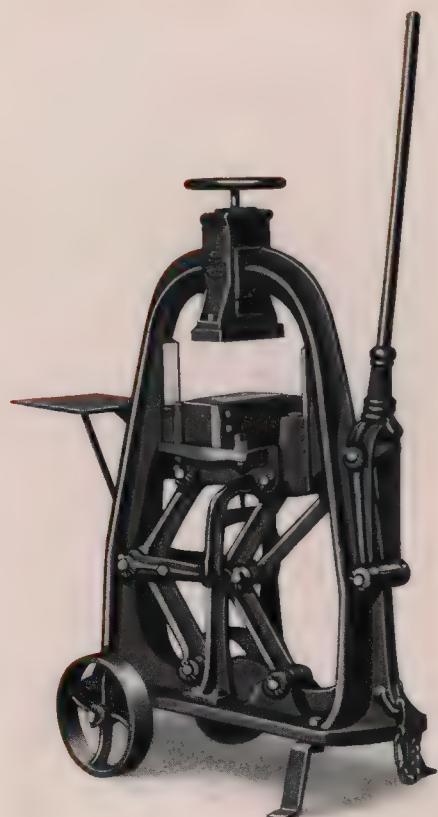
BULLETIN No. 72



INTERNATIONAL  
TYPE 730 HAND REPRESS

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





TYPE 720

## Type 710, 720, and 730

THESE presses are the only hand machines on the market using the toggle motion so prevalent in power dry presses.

With the toggle motion an enormous pressure can be exerted by the average man, which pressure reaches the maximum at the end of the stroke.

The three machines differ only in size and capacity, all being built with a similar toggle mechanism.

For special shapes, small capacities, in fact for all hand pressing, these machines are indispensable.

### SPECIFICATIONS:

**Type 710:** Length over all, 7' 6". Width over all, 20".  
Height over all, 6'. Largest size die, 12"x12"x5 $\frac{1}{4}$ ".

**Type 720:** Length over all, 7' 6". Width over all, 20".  
Height over all, 6'. Largest size die, 12"x12"x5 $\frac{1}{4}$ ".

**Type 730:** Length over all, 9' 10". Width over all, 20".  
Height over all, 8'. Largest size die, 12"x16"x7 $\frac{1}{2}$ ".

## Type 750 Hand Press

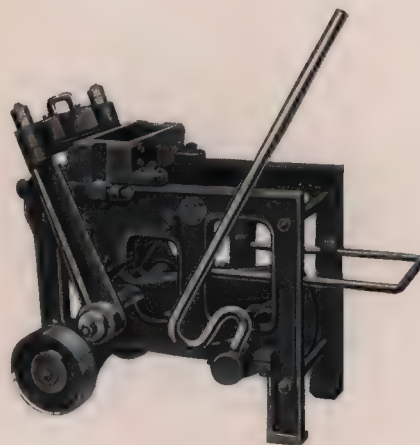
For fire brick and certain special shapes Type 750 Hand Press is largely used. It is very easily operated and gives maximum capacity. Its pressure is enormous, having one lever which controls both pressing and emptying.

A most interesting feature of the press is the construction of the die, it being made in four pieces so fitted, that when worn the die can be torn down and redressed to its original size with small cost.

The thickness of the brick can be easily changed by adjustment of the lower plunger.

### SPECIFICATIONS:

Length over all, 4' 6". Width over all, 2'. Height over all, 3' 2".  
Largest single die, 10"x5"x3 $\frac{1}{2}$ ".



TYPE 750



# INTERNATIONAL

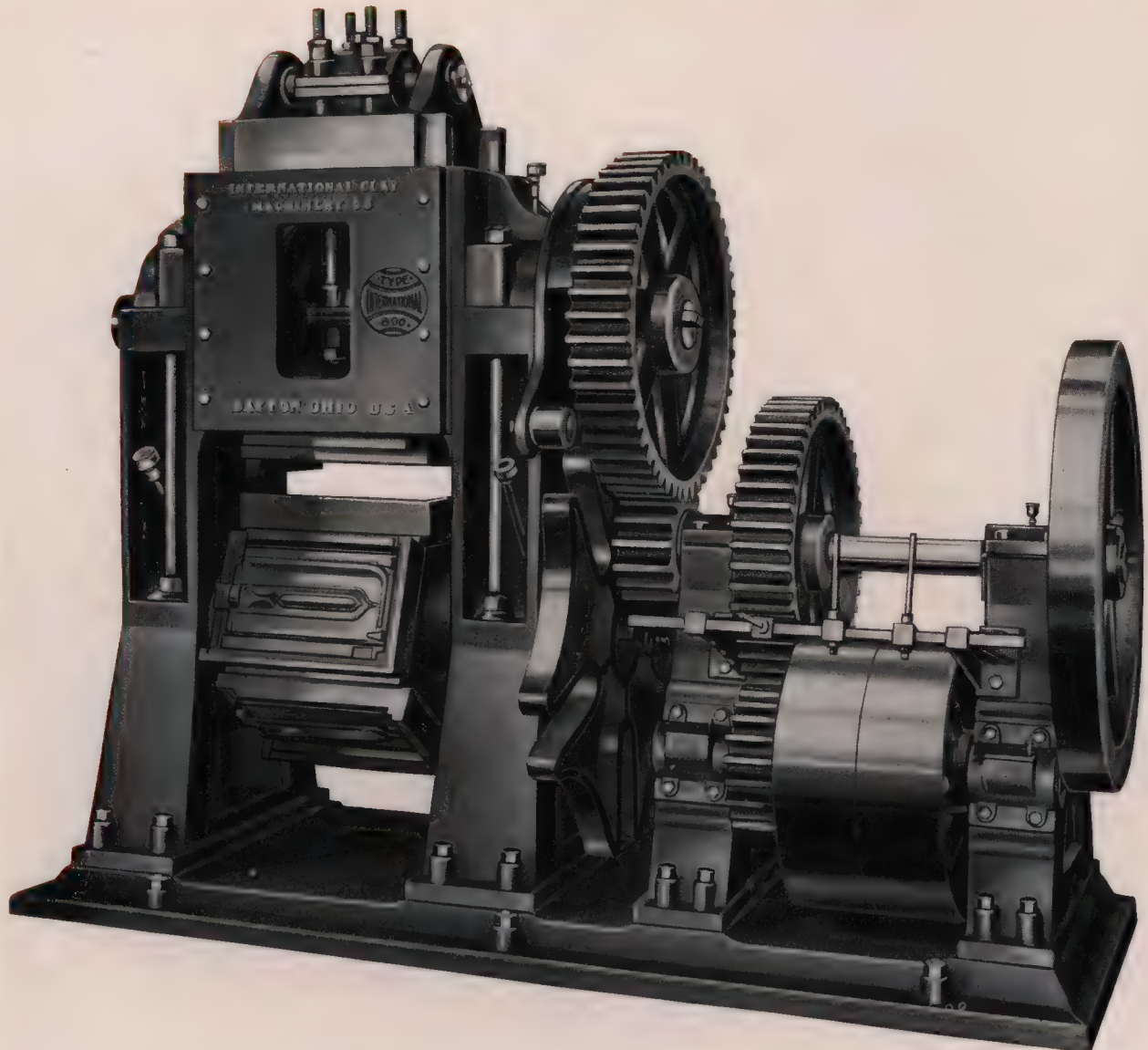
Roofing Tile



Presses

OCTOBER 1917

BULLETIN No. 73



International Type 800  
Pentagon Press

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Type 800 Roofing Tile Press

**I**NTERNATIONAL Type 800 Roofing Tile Pentagon Press is without question the most substantial, heaviest and best built power roofing tile press on the market.

The frames are massive, its base is solid cast iron, its shafting is heavy.

The press motion is accurately timed by means of an escapement movement operating the Pentagon.

The machine is fitted with a tight and loose driving pulley or our new friction clutch pulley.

The Pentagon is cast hollow for the application of steam, sometimes necessary with bad clays.

The machine is furnished with either plaster, brass, steel or composition metal dies, in accordance with the requirements. Price of press varies with the type of die used.

The entire machine is put together with extremely good workmanship, the finished machine operating in a most mechanical manner.

### SPECIFICATIONS

Length over all, 3 ft. 2 in.

Width over all, 8 ft. 6 in.

Height over all, 7 feet.

Size of driving pulley, 23 in. diameter by 7 in. face.

R P M, 125 to 200.

Eight revolutions of pulley to one impression.

Approximate shipping weight, 12,000 lbs.



TYPE 800 ROOFING TILE PRESS

## International Type 850 Hand Roofing Tile Press

**T**HIS is the only Hand Roofing Tile Press using the powerful toggle motion.

The toggles exert heavy pressure on the clay, assuring square corners and a filled out tile.

Three formers, one fixed upper and two removable lowers, are required for maximum capacity work.

The bottom former dovetails with bottom plunger. After a tile is pressed, the former is slid off on to a dovetailed pallet through the operation of pushing a new former on to the die. The tile on the swinging pallet is then dumped and the operation continues.

Type 850 Hand Press is especially valuable in the manufacture of special roofing tile shapes.

### SPECIFICATIONS

Length over all, 4 ft.

Width over all, 4 ft.

Height over all, 5 ft. 9 in.



# INTERNATIONAL

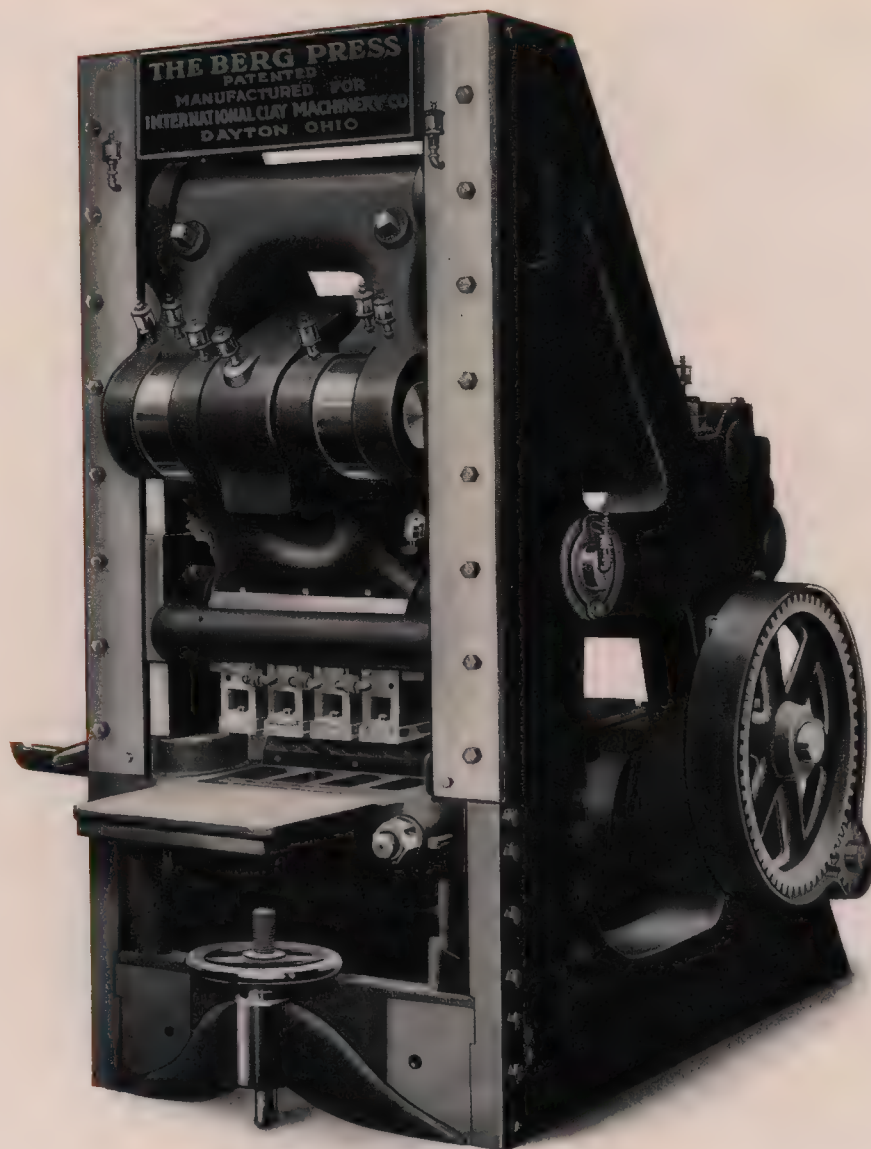
Dry Press



Equipment

OCTOBER 1917

BULLETIN No. 77



International Berg Four Mold Dry Press

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**T**HERE are probably more Berg Dry Presses in successful operation than any other type of dry press machine.

Why is this?

It is a self-contained machine, having no outboard bearing to take up useless room.

It is, as far as we know, the only dry press on the market where the thickness of the brick can be readily changed without shimming.

It is almost impossible to get a granulated brick with the Berg, owing to the fact that the lower plungers remain at the table level until the charger has deposited the clay upon them, most dry presses being so designed that the mold boxes are charged while the lower plungers are descending, this causing the larger grains of clay to run toward the bottom.

The Berg gives three distinct pressures to the brick, the last pressure being from both plungers, while the brick are being lifted from the mold.

All working parts of the Berg are above the clay line, while the changing of molds is an easy proposition. There are no journals, rods or springs below the table.

This is without question of doubt, the simplest dry press machine on the American market, and is built in a most mechanical way.

The side frames of the machine are very massive, while the side bars and crank shaft are of forged steel.

The bearings are few, and of large dimensions, steel collars being used to take up the wear on the toggles, it not being necessary to replace the entire toggle mechanism to take up a small amount of wear.

Wherever you go, you will find the performance of the Berg the subject of most favorable comment.

The Berg is built in two sizes, a Two Mold and a Four Mold Machine.

## SPECIFICATIONS

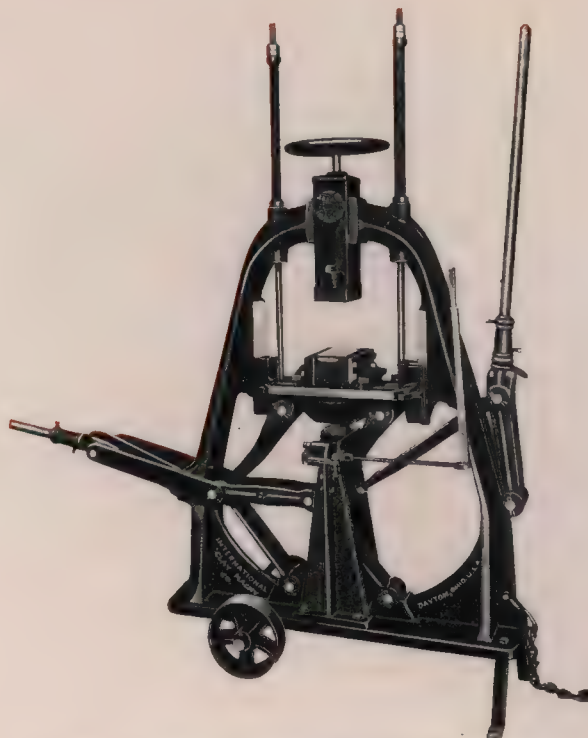
### FOUR MOLD PRESS

Length over all, 8' 2"  
Width over all, 5' 4"  
Height over all, 8'  
Friction clutch pulley, 30" dia. by 12" face.  
R P M, 210.  
Approx. shipping weight, 26,000 lbs.

### TWO MOLD PRESS

Length over all, 7' 6"  
Width over all, 4' 4"  
Height over all, 7' 4"  
Friction clutch pulley, 30" dia. by 12" face.  
R P M, 210.  
Approx. shipping weight, 13,000 lbs.





**Type 760 Hand Dry Press**

Type No. 760 Hand Dry Press has been especially designed for the manufacture of shape brick, as well as special products pressed in a dry way.

With the use of Type No. 760 Hand Press on a yard manufacturing shapes or ornamentals, the power presses can be run continuously on standard brick.

The most efficient point of this machine is the pressure from both top and bottom, the bottom pressure being actuated by eccentric ends on the upper toggles.

The brick are pressed and delivered from the die in the usual manner. A small auxiliary lever shown on the press is then operated, this lever allowing the lower plunger to drop to the bottom of the die. The die box is then ready to be filled for the pressing of another brick.

This press uses the toggle motion, which is the most powerful motion known, the pressure upon the brick being enormous.

For all shapes and special work, this hand press is most heartily recommended.

**INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.**





### International Dry Press Mixer

International Mixers are most commonly used as feeders for dry press machines.

They are built with a large steel tub having two openings in the bottom, through which the material passes to the dry press machine.

Its vertical shaft has attached a heavy arm operating a drag, or paddles, which thoroughly mixes the contents of the tub and at the same time forces the clay through the two holes in the bottom of the tub.

Not only is this machine used for dry press purposes, but at the same time is sold as a mixer for clay, sand and other material.

The machine can also be fitted with a steaming device for controlling the amount of moisture in the material mixed by the machine.

### SPECIFICATIONS

Pulley, 30" in diameter by 6" face.

R P M, 40 to 60.

Capacity, One Mixer to a Four Mold Press.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

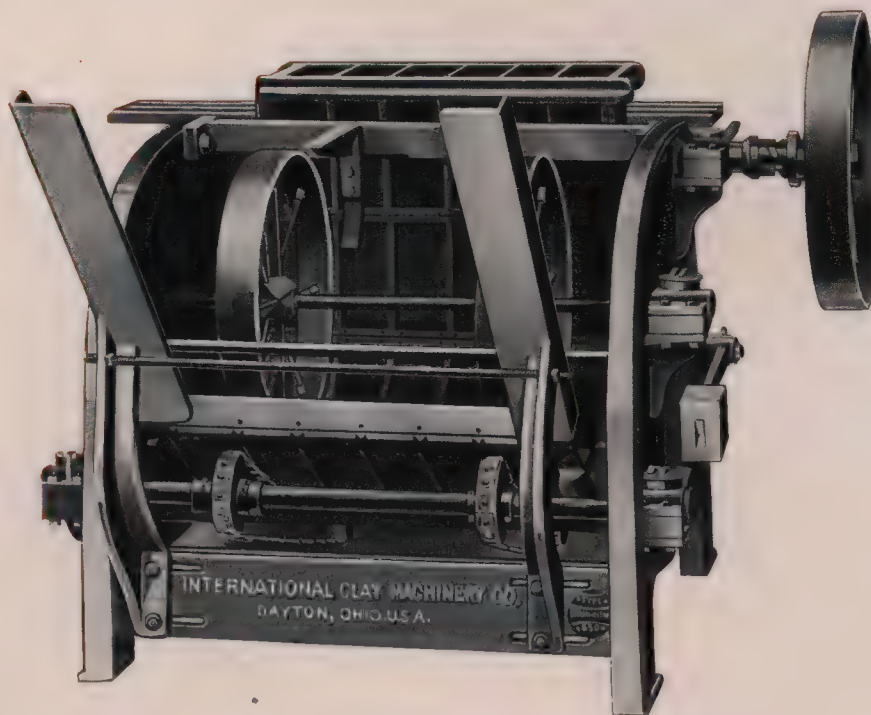
MOLD

SANDERS

JANUARY 1918



BULLETIN No. 81



INTERNATIONAL TYPE 650 MOLD SANDER

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.

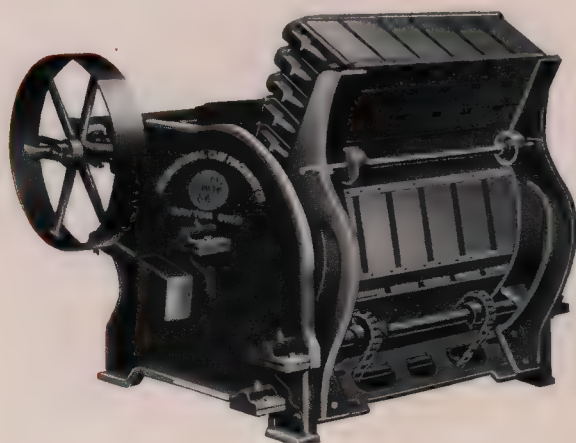


## International Type 650

**T**HIS Sander is usually used on yards where the pallet system is in vogue. It is of the chain type built entirely of iron and steel. The pulley is readily reversible from right to left and the machine will feed practically any standard size of mold by simply changing the slide.

The molds enter the sander through guides and the chain holds them against the pulley. It takes them through the machine discharging each mold at the top ready for the brick machine.

Size of Pulley, 26" diameter 4" face.



TYPE 660

## International Type 660

This sander is very similar to Type 650 with the exception that the guides extend around the pulley and the molds are fed in automatically, the machine taking as high as six molds at a time.

This type of machine is usually used on plants where the open yard system of drying is found.

Size of Pulley, 26" diameter 4" face.

## International Type 670

This sander is of the spider type, it being positive in operation, there being no chain or belt.

The molds are held in position by the arms of the spider, the sand being fed to the molds by the front plates. The molds are turned completely over during the sanding.

Clutch Pulley, 16" x 3". RPM, 3 for each mold sanded.



TYPE 670

Machines are built either right or left.



# INTERNATIONAL

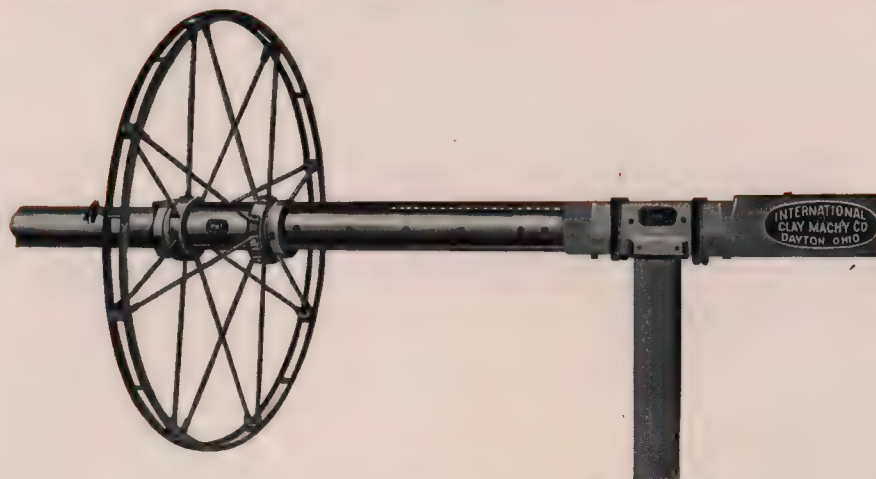
Soft Mud



Supplies

OCTOBER 1917

BULLETIN No. 82



International Tempering Wheels



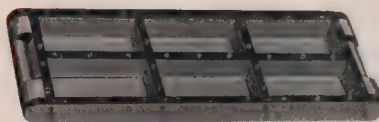
6, 6½ and 7 ft. Wheels

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





ONE TYPE OF INTERNATIONAL  
STRIKE KNIFE



HAND MOULDS ALL SIZES



MACHINE MOULDS  
ALL SIZES



MOULD HANDLES



INTERNATIONAL DUMP TABLE  
MADE IN 4, 5 OR 6 PALLETS



# INTERNATIONAL

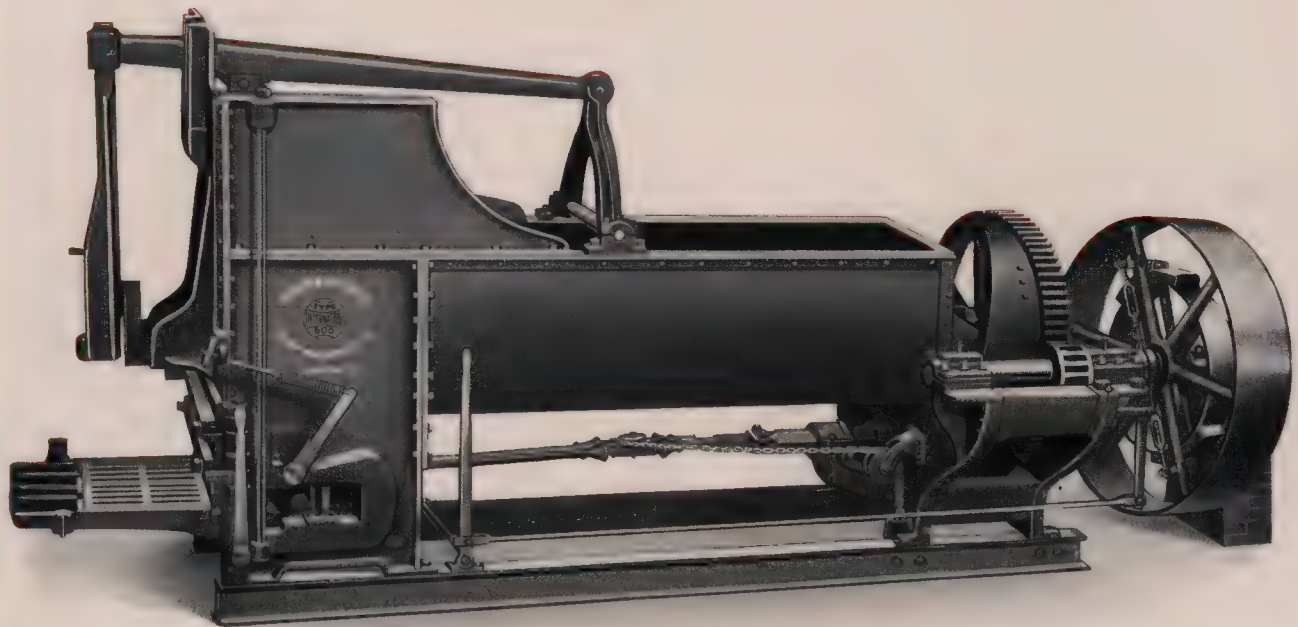
Type 600 Soft



Mud Brick Machine

OCTOBER 1917

BULLETIN No. 83



**International Type 600  
Soft Mud Machine for Fire Brick  
and Building Brick**

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



THIS Machine on account of its heavy duty construction is especially adapted to the manufacture of soft mud fire brick, silica brick and high capacities of building brick.

"The proof of the pudding" is, that there are probably more soft mud fire brick made on Type 600 Machine than any other.

Notice its heavy back frames of the box type, its gearing and heavy duty mold pushout mechanism.

Its walking beam is made of steel, and the entire front is heavy cast iron instead of flexible sheet steel so commonly used in other machines.

The Clay Press or Plunger has an iron head 32 in. long and 9 in. to 12 in. wide, while the press box is made up on three sides of the cast iron front of the machine; on the other, or inside by a 6 in. movable wing running the length of the plunger.

The wing acts as an active relief for over pressure or surplus clay. It also acts as a safety device when any foreign substance enters the press box.

As a further guarantee against stones or iron pieces entering the press box, a receptacle is provided immediately behind the safety wing, into which foreign substances can drop, imbedding themselves in the clay without reaching the press box. This is a most important feature in soft mud work.

The mold table is adjustable to any reasonable thickness of brick. The steel rollers that hold the molds when being filled, are provided with extra long bearings with proper lubricating devices.

Type 600 Machine has its heavy cast iron front tied together in a way that no legitimate pressure applied to the clay in the press box will tend to open out the front.

Pressure on the brick is easily regulated by means of the position of a pin in the pitman at the front of the machine.

The machine is contained on I beam skids and the outboard bearing is heavy and well arranged.

Not only do we believe that Type 600 Soft Mud Machine is the strongest and heaviest fire brick machine made, but we further believe that it will press a stiffer fire brick than any other machine on the market.

### SPECIFICATIONS

Length over all, 22' 6"  
Width over all, 8' 4"  
Height over all, 9' 3"  
Pulley, 62" x 12"

Six revolutions for one mold of brick.  
Length of pugging chamber, 13'  
Width of pugging chamber, 30"  
Approximate shipping weight, 20,000 lbs.



# INTERNATIONAL

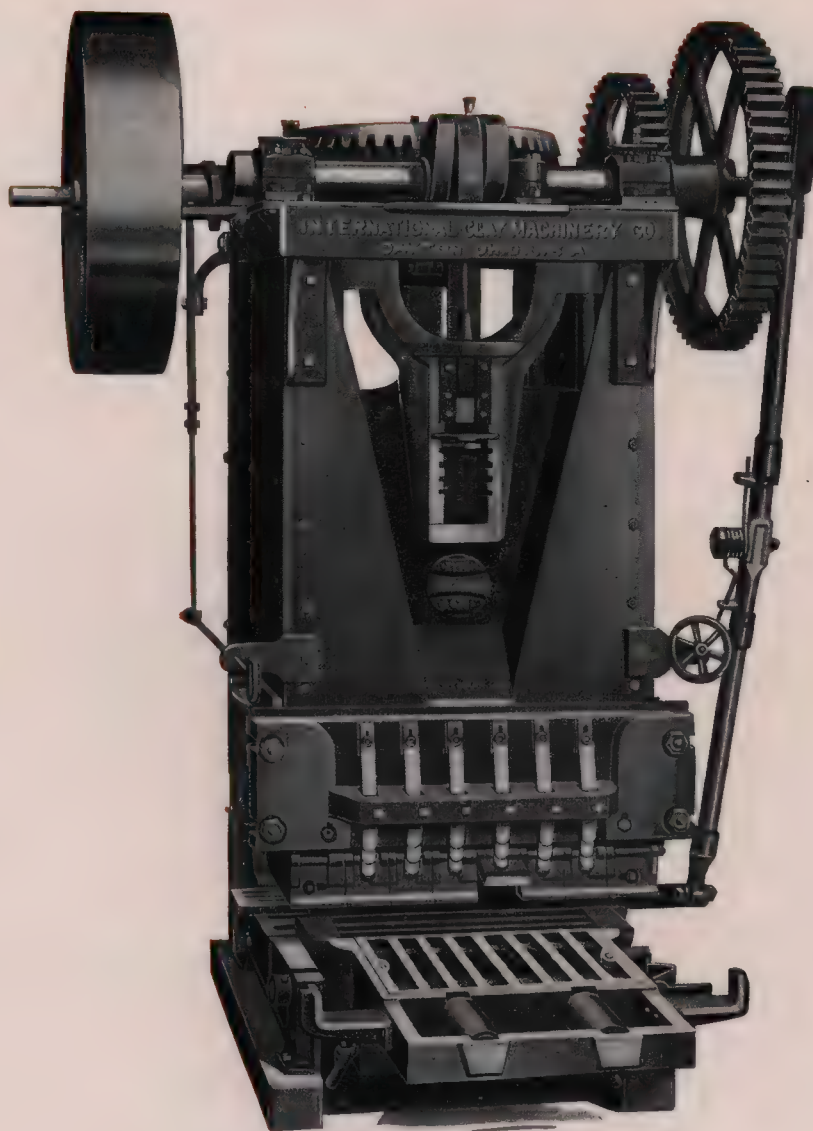
Upright Soft



Mud Machines

NOVEMBER 1917

BULLETIN No. 84



International Type 630  
Soft Mud Machine

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



### Type 630 Upright Soft Mud Machine

**M**ANY clayworkers of small and medium capacity do not require a large horizontal Soft Mud Machine to take care of their requirements.

Type 630 Machine has been designed for such yards, especially for those where a large amount of pugging is not required. Quite a number of plants though with hard working clays, use a separate pug mill in addition to the machine.

It is built in a very substantial manner having a cast iron base, stout corner uprights and easily removable sides.

The main upright shaft is 4" in diameter, of square section, and supports the knives in such a way that they can be readily removed.

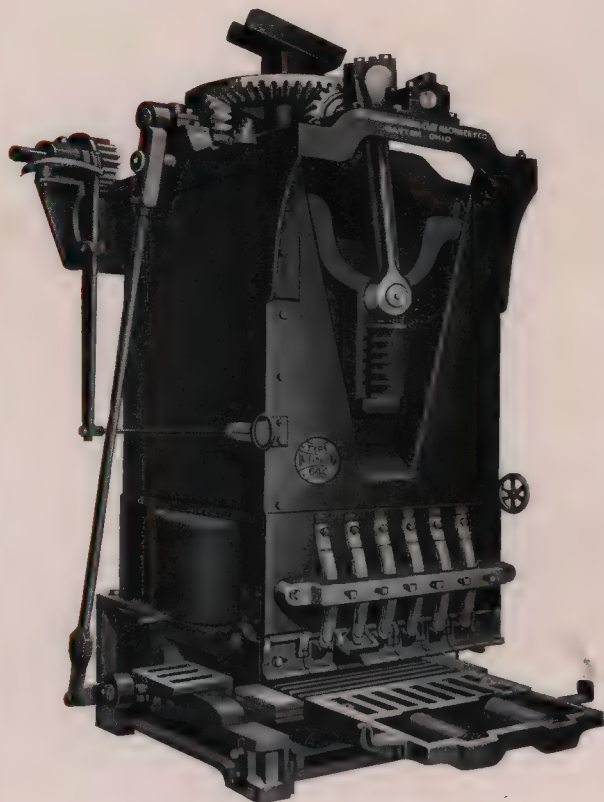
The clay press operates in a manner similar to International's large horizontal machines. It also has an automatic relief, a self-adjusting table and is regularly furnished with hinged front and stone door.

For small and medium capacity soft mud yards Type 630 Machine cannot be duplicated.

### SPECIFICATIONS

Length over all, 8'  
Width over all, 6' 3"  
Height over all, 10' 4"

Pulley, 44"x10"  
R P M, 120 to 150.  
Capacity, 20,000 to 35,000.  
Approximate shipping weight, 11,000 pounds.



TYPE 640 SOFT MUD MACHINE

### Type 640 Upright Soft Mud Machine

This Machine is identical in construction to Type 630 Machine with the exception that the pulley and driving mechanism are omitted and the sweep iron for attaching a wooden shaft is substituted.

The machine at any time can be converted into Type 630 Steam Power Machine at a small cost.

### Specifications

Length over all, 7'  
Width over all, 5' 2"  
Height over all, 10'  
One revolution of the upright shaft will make three molds of brick.  
Approximate shipping weight, 8000 pounds.  
Capacity, 15,000 to 30,000 brick per day.



# INTERNATIONAL

Types 875 and 880



Clay Feeders

SEPTEMBER 1917

BULLETIN No. 101



International Type 875  
Clay Feeder

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**I**NTERNATIONAL Clay Feeders differ from all other disc feeders on the market.

The ordinary clay feeder of the disc type, at times gives trouble with damp clay, the clay tending to bridge above the hopper.

International Clay Feeders are so designed that the upright shaft extends to the top of the bin above the feeder.

This upright shaft is fitted with knives above the hopper, which knives revolve with the feeder, working the clay down to the feeder hopper, doing away with the tendency to bridge.

International Feeders are built in heavy duty proportions, the feeder being furnished in two sizes of disc plates, type 875 with a disc 48 inches in diameter and type 880 with a 60 inch disc.

Notice the construction of the feeder. It is designed in a most mechanical manner, being arranged for either sprocket or belt drive, as the occasion may demand.

### **Specifications 48 in. Disc Type**

Cylinder 30 in. diameter, 18 in. high.

Shafts,  $2\frac{7}{16}$  in.

RPM driving shaft, approx. 104.



# INTERNATIONAL

Elevators and



Conveyors

SEPTEMBER 1917

BULLETIN No. 102



**International Belt Conveyors**

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





**INTERNATIONAL BELT  
ELEVATOR**

### **International Belt Type Elevator**

International Elevators are built for the severe work of conveying ground clay from the pit below a dry pan to the screens overhead.

The boots are fitted with takeup boxes, and are very accessible both from sides and ends, as shown in cut.

Both pulleys on International Elevators are 2" wider than the width of the belt, this doing away with any tendency to fray the edges of the belt, also the buckets catching on the boot or top gearing.

All International Elevators are fitted with bottom slatted pulley for use in sticky clays, while the top pulley is of large dimensions, giving a good radius of swing to the bucket when emptying.

All Elevators are equipped with high grade steel buckets, heavy gearing and shafting, in fact, are built for service.

International Elevators are built in practically all standard sizes, buckets running from 8" by 5½" up.

International Wet Clay Elevators are built with shelf buckets, either with or without boot in accordance with the requirements specified.

#### **SPECIFICATIONS**

Size standard driving pulley, 24" x 6"

RPM, 150 for spur gear; 125 for bevel gear.

### **International Waste Clay Elevators**

All Waste Clay Elevators are furnished with a shelf type of bucket, overhead gearing, similar to cup elevator with bottom slatted pulley, shafts and takeup boxes, but no boot. Boot can be furnished extra if desired.

### **International Conveyors**

International Conveyors are built in sections, the sides of 12" x 2" pine, properly braced and bolted.

All International Conveyors are regularly equipped with slatted drums as per cut. All rollers have ⅝" turned journals. All roller flanges run separate from the roller proper, being as near frictionless as possible.

All conveyors are equipped with takeup boxes, idler rollers, and the belt is of the troughing variety. Steel side conveyors are built for special work, other special conveyors being built on specification.

#### **SPECIFICATIONS**

Standard conveyor driving pulley, 24" x 8"      RPM, 150 for spur gear; 125 for bevel gear.

### **International Waste Clay Conveyors**

Waste Clay Conveyors are built as a standard in the flat belt variety, troughing conveyors being used for special work.

**INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.**



# INTERNATIONAL

Piano Wire



Screens

NOVEMBER 1917

BULLETIN No. 103



International Type 680  
Piano Wire Screen

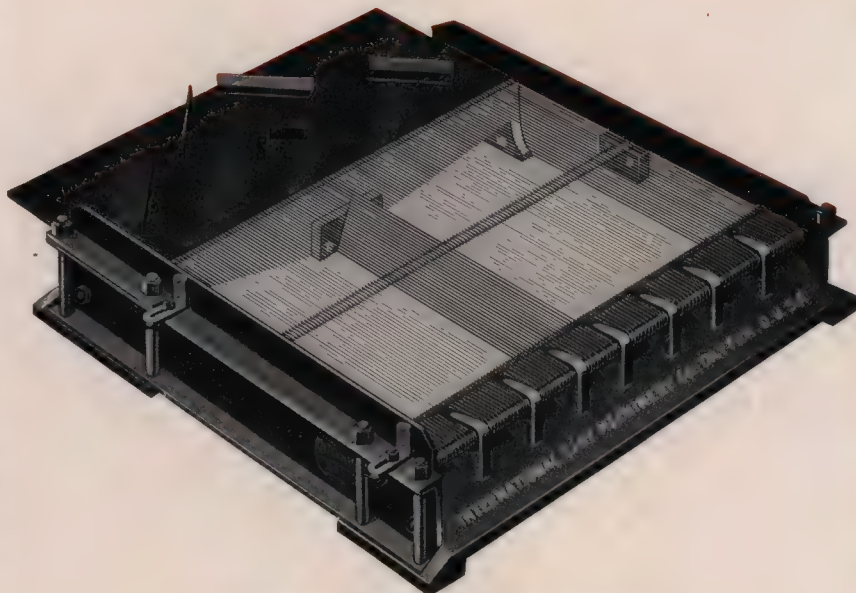
INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



A large percentage of clay-workers making wire cut or dry press products use the Piano Wire Type of Screen.

International Screens are built in five standard sizes for practically all classes of work.

Notice the heavy channel side frames with overhanging loop and keyboards. Note detail of keyboard, it containing a series of tightening keys accurately fitted into tapered holes, which keys are held firmly in place by lock nuts. What better type of construction could be imagined.



TYPE 685 PIANO WIRE SCREEN

Besides the end spacing bars, Type 680 and Type 695 Screens have two center spacing bars equidistant from each other. This type of construction prevents spreading of the wires.

Notice that each screen is fitted with a delivery board, to spread the clay equally over the surface of the wires, all screens being further fitted with adjustable steel sides.

Without question of doubt, International Piano Wire Screens are more than the peer of any similar screens on the market.

### SPECIFICATIONS

*Type 675:* Use—dry press, small capacity wire cut screening.

Screening surface 24" x 48", 8 sq. ft.

*Type 680:* Use—wire cut and soft mud screening.

Standard size screen for one dry pan.

Screening surface 24" x 60", 10 sq. ft.

*Type 685:* Use—dry press work.

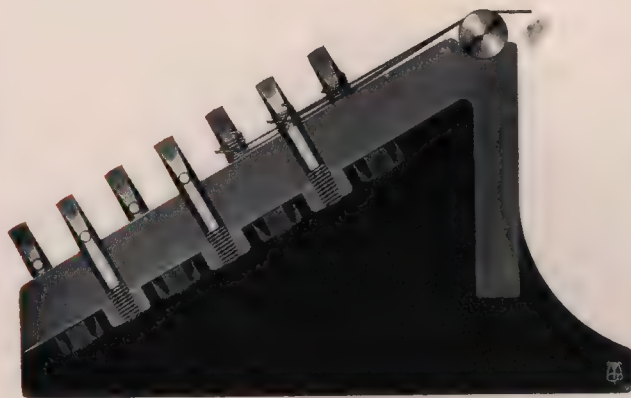
Screening surface 42" x 33", 10 sq. ft.

*Type 690:* Use—wire cut and dry press, with one or two pans.

Screening surface 42" x 52", 15 sq. ft.

*Type 695:* Use—wire cut screening, often used in large capacity work with one pan.

Screening surface 30" x 60", 12½ sq. ft.



SECTION THROUGH KEY BOARD



# INTERNATIONAL

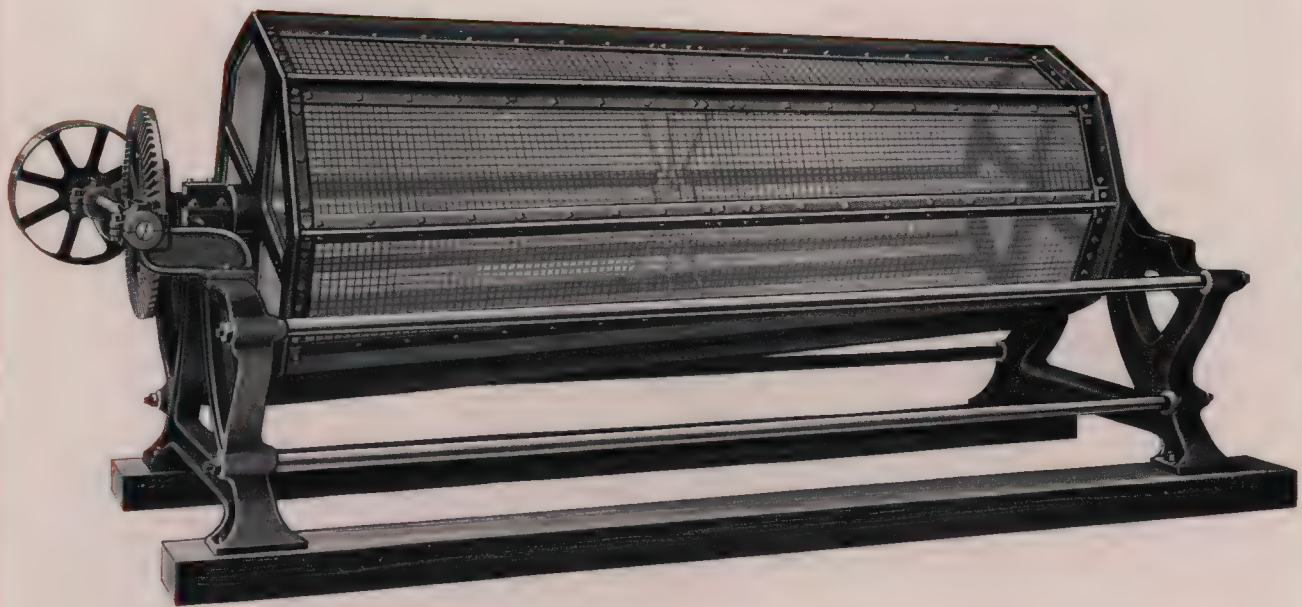
Revolving



Screens

DECEMBER 1917

BULLETIN No. 104



International Revolving Screen

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



THE manufacture of certain types of clay ware, as well as sand and gravel plants, require a revolving conical type of screen.

International Revolving Screens are built entirely of metal with the exception of the skids. The heavy cast iron screen end frames are separated by means of structural stringers, with a spacing spider placed equi-distant from the two ends.

The screen plates are made of perforated metal or woven wire and are readily replacable or interchangeable.

For special installations the frames may be omitted and the screen cylinder fitted with two shafts, babbitted boxes and bevel or spur gears as well as pulley or sprocket.

This screen is built in a very heavy duty manner giving perfect satisfaction on many types of plants.

### SPECIFICATIONS—9 ft. Screen

Length over all, 12 ft.  
Width over all, 5 ft. 5 in.  
Pulley size, 18 in x 8 in.  
R P M, 75.

Diameter of cylinder at large end, 3 ft. 4 in.  
Diameter of cylinder at small end, 2 ft. 8 in.  
Diameter of main shaft,  $2\frac{7}{16}$  in.  
Diameter of counter shaft,  $2\frac{3}{16}$  in.  
Approximate shipping weight, 1300 lbs.

Special Screens are built in all ordinary lengths of from 5 to 10 ft.



# INTERNATIONAL

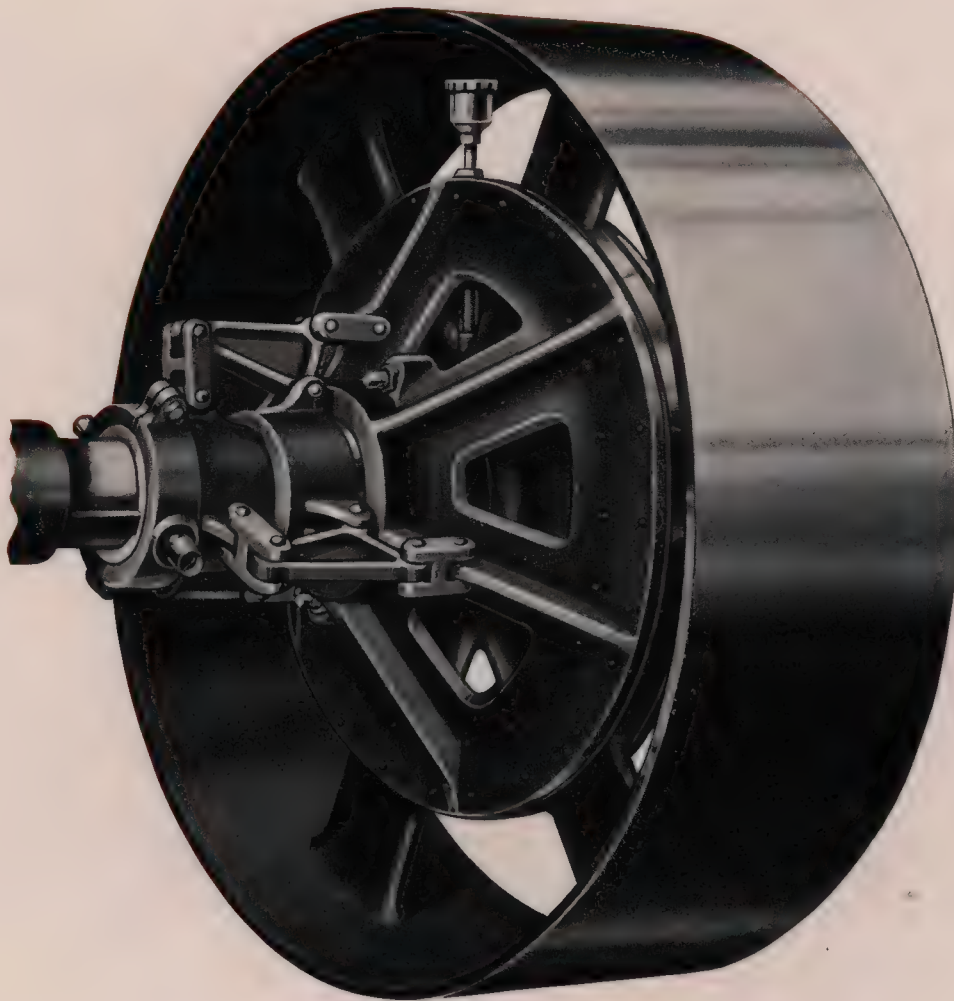
Friction Disc



Clutch Pulleys

FEBRUARY 1918

BULLETIN No. 105



INTERNATIONAL FRICTION DISC CLUTCH PULLEY

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Friction Disc Clutch Pulleys

**I**NTERNATIONAL Friction Disc Clutch Pulleys have an exclusive feature found on no other make of clutch—the application of a balanced pressure on both sides of the clutch pulley arms.

**DISENGAGEMENT**—It is the only heavy clutch with a positive disengagement. This feature does away with the possibilities of the clutch sticking when thrown out.

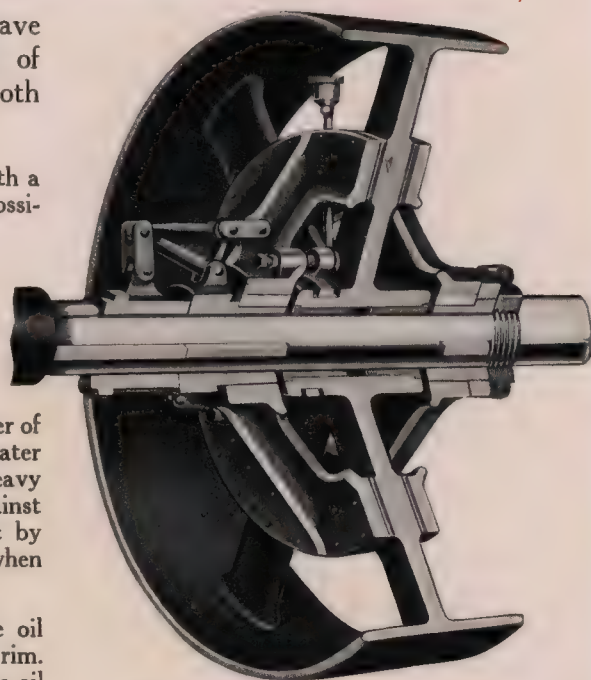
**ADJUSTMENT**—The clutch has but one point of adjustment. To accomplish this, but one set screw is loosened; a partial turn is taken on a collar, the set screw is tightened and the adjustment is made. Compare this with the adjustment of 4- to 6-arm type of clutch.

**FRICTION**—A double circular area 4" wide, the diameter of the circle varying with the diameter of the pulley, gives a greater friction surface than has been previously attempted on heavy clutches. The flat friction surfaces consist of hard fibre against cast iron. The fibre lining is attached to the clutch disc by means of soft copper rivets, the lining being easily replaced when worn.

**LUBRICATION**—The hub of the pulley has a large oil recess, this recess connecting with an oil cup near the pulley rim. On large pulleys duplicate oiling is provided by forcing the oil through the end of the shaft on which the pulley runs.

**CONSTRUCTION**—All pulleys are built very rugged and sturdy. The clutch pressure being even on both sides of the pulley arms, the pulley is always in line. The clutch discs and pulley have renewable bushings and hubs; replacement of the main clutch members thus being eliminated.

**OPERATION**—To engage the clutch, the removable or operating disc moves against the pulley, the pulley moves against the stationary disc, and the clutch locks. In disengaging, the operating disc is first pulled away from the pulley by the proper mechanism. The positive release mechanism moves the pulley away from the stationary disc. (The word stationary is with reference to the shaft only, inasmuch as both discs revolve with the shaft and the pulley runs free.)



DETAIL OF CLUTCH MECHANISM

### HORSE POWER OF FRICTION DISC CLUTCHES

SIZE OF CLUTCH MECHANISM										
Dia. of Pulley in Inches	21 In.					24 In.			27 In.	Dia. of Pulley in Inches
	WIDTH OF BELT IN INCHES									
	6	8	10	12	14	16	18	20	22	
28	24	32	40	48	56	64	72	80	88	28
30	26	34	42	52	60	68	76	86	94	30
36	30	40	50	60	72	82	92	102	110	36
38	32	42	54	64	76	86	96	108	118	38
40	34	44	56	68	80	90	102	112		40
42	36	48	60	70	82	94	106	118		42
48	38	52	64	78	90	104	116			48
52	40	54	68	80	94	108	120			52
56		58	72	86	98	116				56
60		66	82	100	116					60

Max. Size of Shaft Used on Clutches: 21" Mech.  $2\frac{1}{8}"$ , 24" Mech.  $3\frac{1}{8}"$ , 27" Mech.  $4\frac{1}{8}"$ . Based on 200 R.P.M.  
Heavy Type Indicate Standard Stock Sizes.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

Stiff Mud



Dryer Cars

FEBRUARY 1918

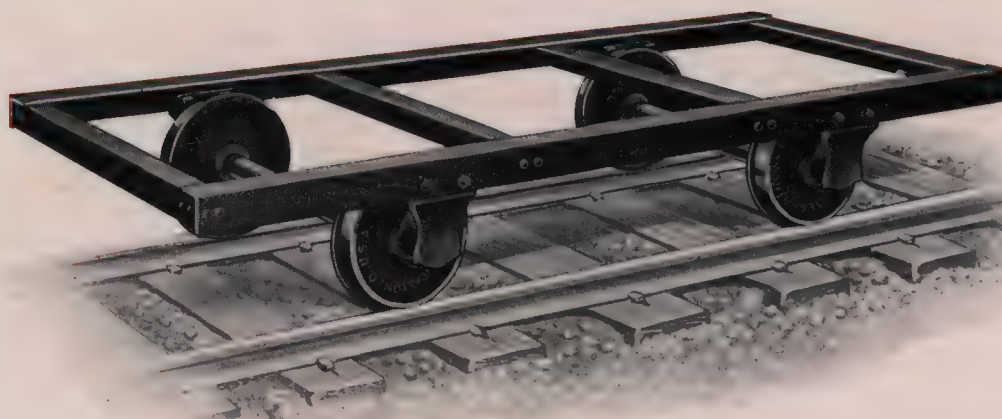
BULLETIN No. 116



Car "G"

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.

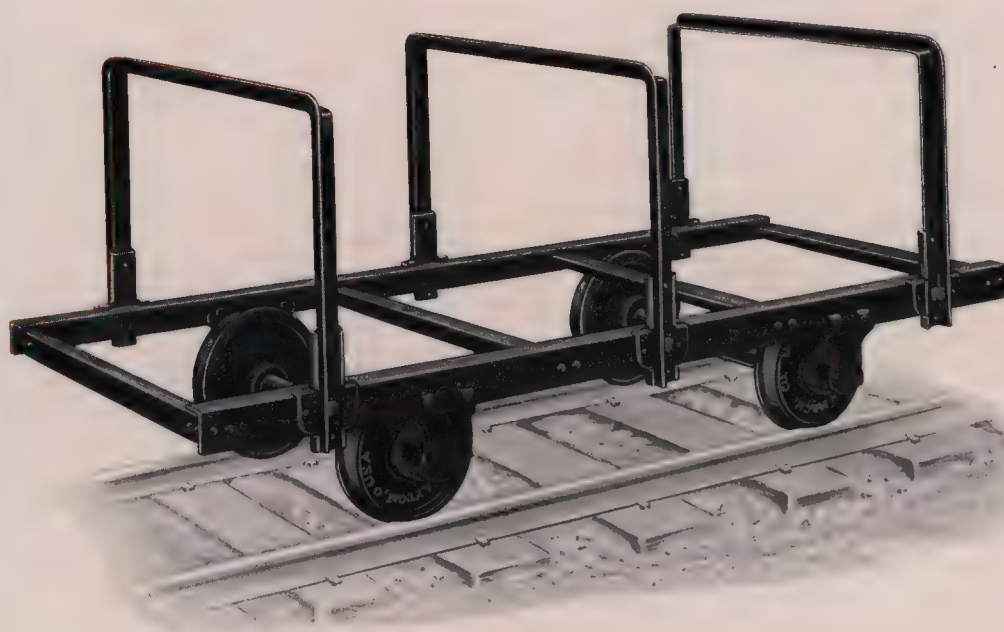




Car  
"A"



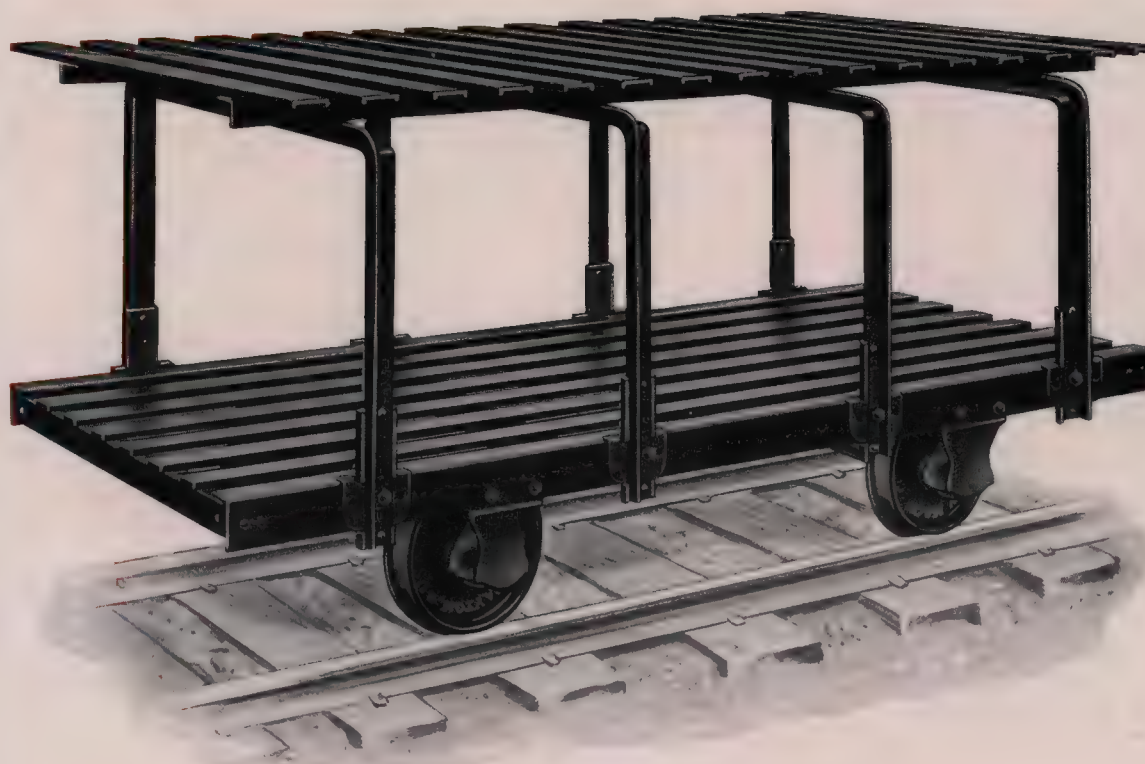
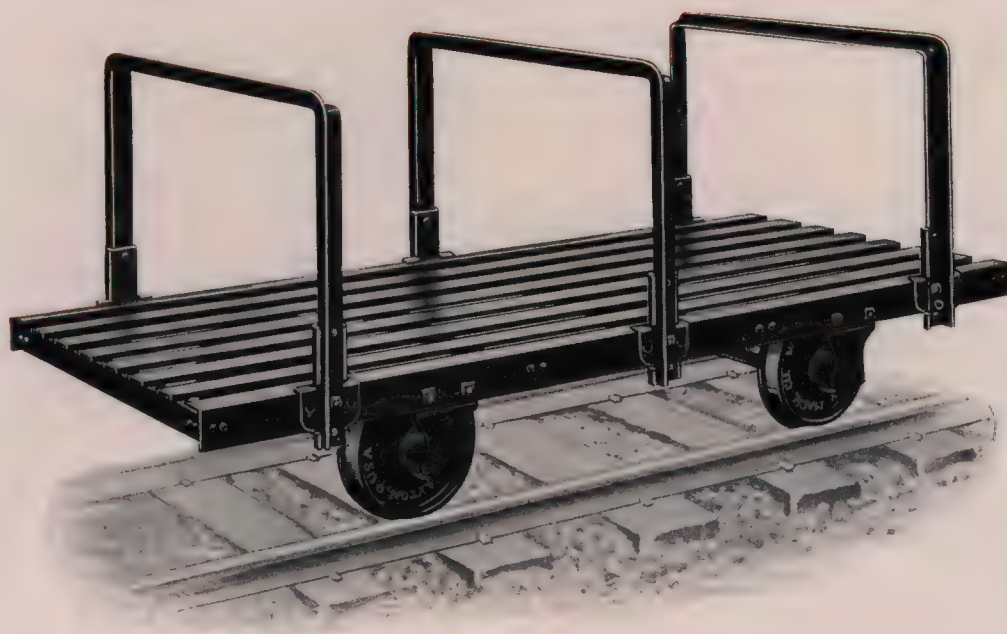
Car  
"B"



Car  
"C"



Car  
"E"



Car  
"J"





SECTIONAL VIEW  
THROUGH BEARING

**I**NTERNATIONAL Cars we firmly believe are the best built and most easily operated cars on the market.

Why?

All wheels are solid cast iron, not spoked, with very heavy flanges and tread, each wheel being firmly pressed upon the axle.

All cars have four cross angles for support of the bottom deck. All frame rivets are placed hot with automatic machines.

International uprights are made in one piece and attached to the side frames by means of a pressed steel gusset plate of most excellent design, the weight of the upper deck being carried by a flange on the gusset plate and not by the shear of the bolts.

The bearing used on all International Cars is of the flexible variety. It consists of a strong outer casing, made in one piece, having a ball joint seat, which receives a floating ball joint bushing. This bushing is accurately bored on the inside for roller bearings made of steel, which run on a turned axle.

Not only does this make International Cars run easier, but the universal bearing allows the track to be from 4" to 6" lower on one side than the other without causing the bearing to bind.

What other car has so many points of merit, and is so well constructed?

## SPECIFICATIONS

### CAR "A"

Length over all, 83"  
Width over all, 35"  
Height from top of rail to top of side angle,  $12\frac{1}{4}$ "  
Approximate shipping weight, 251 lbs.

### CAR "B"

Length over all, 83"  
Width over all, 35"  
Height from top of rail to top of deck,  $12\frac{1}{4}$ "  
Approximate shipping weight, 321 lbs.

### CAR "C"

Length over all, 83"  
Width over all,  $38\frac{1}{2}$ "  
Width of deck, 35"  
Height from top of rail to top of lower deck side angle,  $12\frac{1}{4}$ "  
Height over all,  $31\frac{1}{4}$ "  
Approximate shipping weight, 303 lbs.

### CAR "E"

Length over all, 83"  
Width over all,  $38\frac{1}{2}$ "  
Height from top of rail to top of lower deck,  $12\frac{1}{4}$ "  
Height over all,  $31\frac{1}{4}$ "  
Approximate shipping weight, 374 lbs.

### CAR "G"

Upper deck hinged on one side, and furnished with brace for support of upper deck while loading.

Length over all, 83"  
Width over all,  $38\frac{1}{2}$ "  
Width of upper deck, 35"  
Length of upper deck, 6' 9"  
Width of lower deck, 35"  
Height from top of rail to top of lower deck,  $12\frac{1}{4}$ "  
Height over all,  $33\frac{3}{4}$ "  
Approximate shipping weight, 487 lbs.

### CAR "J"

Special heavy single deck or double deck car. Double deck car arranged with four uprights instead of the ordinary three. Upper deck hinged similar to style "G".

Length over all, 83"  
Width over all,  $38\frac{1}{2}$ "  
Width of lower deck, 35"  
Length of upper deck, 6'  $10\frac{1}{4}$ "  
Width of upper deck, 35"  
Height from top of rail to top of lower deck, 13"  
Height over all,  $35\frac{1}{2}$ "  
Approximate shipping weight double deck car, 867 lbs.  
Approximate shipping weight single deck car, 717 lbs.

Special Dryer and Industrial Cars of practically all types are built in large quantities in International Shops.

**INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.**



# INTERNATIONAL

Hollow-ware



Dryer Cars

APRIL 1918

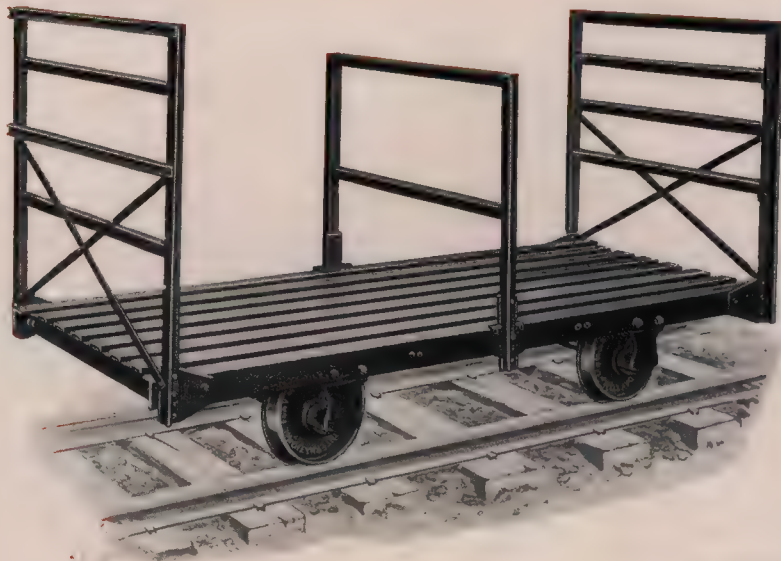
BULLETIN No. 117



Car "O"

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





Car "M"

**I**NTERNATIONAL Hollow-ware Cars, we firmly believe, are the best built and most easily operated cars on the market.

All wheels are solid cast iron, not spoked, with very heavy flanges and tread, each wheel being firmly pressed upon the axle.

All cars have four cross angles for support of the bottom deck. All frame rivets are placed hot with automatic machines.

The uprights are made in one piece and attached to the side frames by means of a pressed steel gusset plate of most excellent design, the weight of the upper decks being carried by a flange on the center gusset plate and not by the shear of the bolts.

The bearing used, as per illustration, is of the flexible variety. Not only does this make International Cars run easier, but the universal bearing allows the track to be from 4" to 6" lower on one side than the other without causing the bearing to bind.

The end uprights extend above the top of the upper deck, and are banded across, doing away with any possibility of the ware falling off the ends of the cars.

SECTIONAL VIEW  
THROUGH BEARING

## SPECIFICATIONS

### CAR "M"

Length over all, 83"  
Width over all, 38½"  
Height over all, 54¾"  
Height from top of rail to top of lower deck, 12¼"  
Distance from top of lower deck to top of middle deck rests, 16½"  
Distance from top of middle deck rests to top of upper deck rests, 18½"  
Approximate shipping weight, 460 lbs.

### CAR "O"

Length over all, 83"  
Width over all, 38½"  
Height over all, 54¾"  
Height from top of rail to top of lower deck, 12¼"  
Distance from top of lower deck to top of middle deck, 17"  
Distance from top of middle deck to top of upper deck, 18½"  
Approximate shipping weight, 678 lbs.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

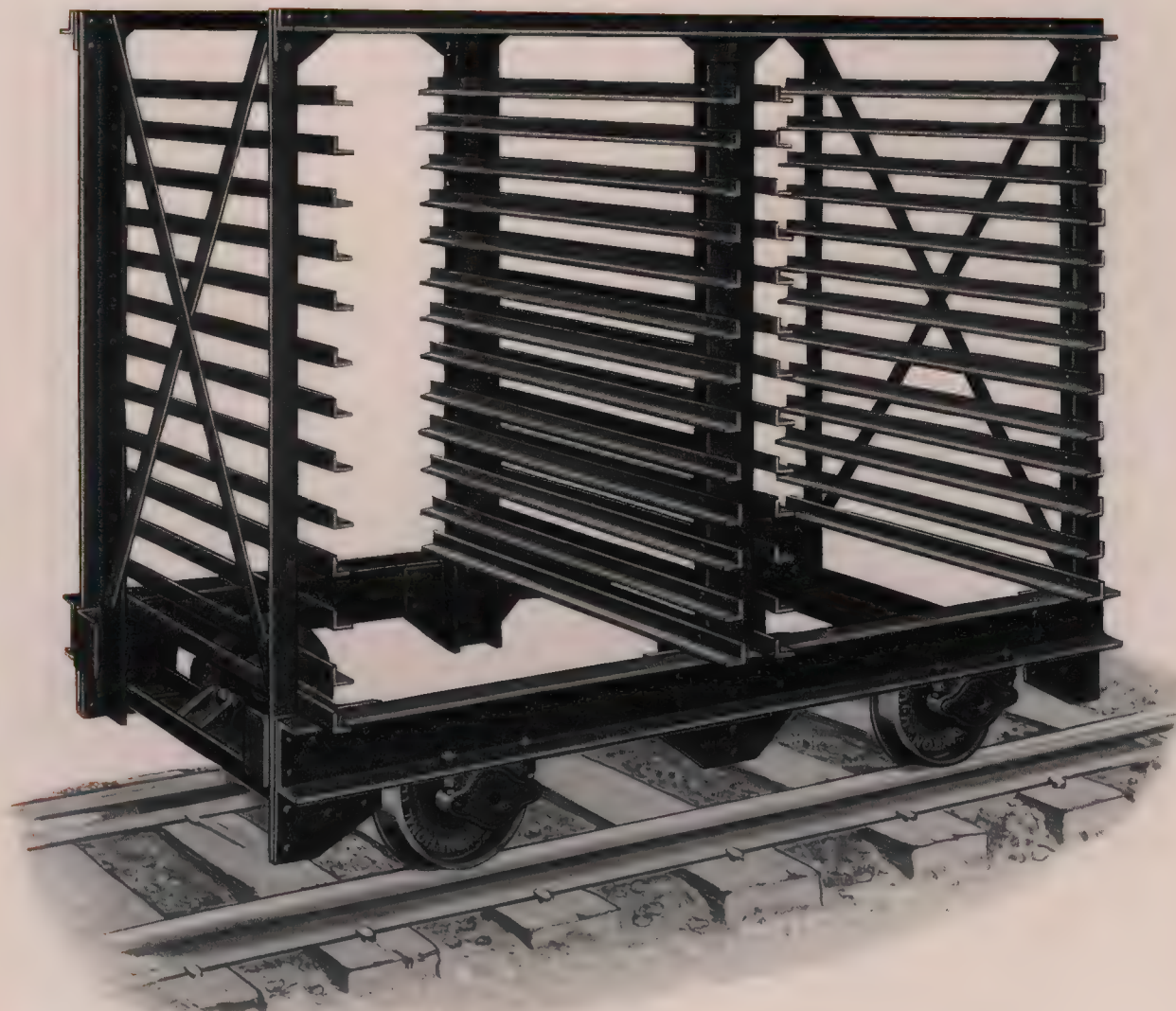
Pallet



Dryer Cars

FEBRUARY 1918

BULLETIN No. 118



CAR "P"

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Pallet Cars

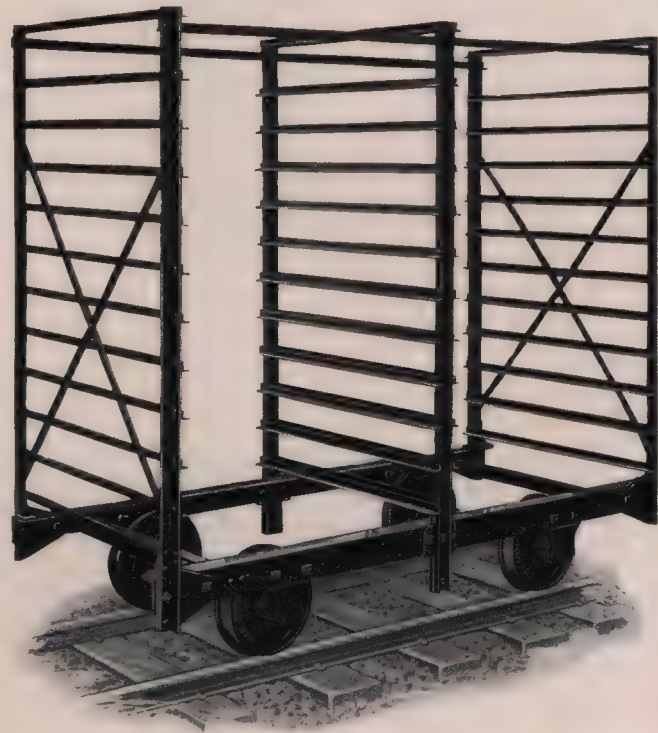
**T**HESE CARS, we believe, to be the best built and easiest operated cars on the market. All wheels are solid instead of spoked; the frame rivets are placed hot; the gusset plates are of especially efficient design, and the frames are heavy and well put together.

International's New Universal Roller Bearing is the standard on Car "F" and is recommended on Car "P", although Car "P" can be fitted with rigid roller bearing shown in cut.

This New Universal Bearing not only makes International Cars run easier, but allows the track to be from 4 inches to 6 inches lower on one side than the other without causing the bearings to bind.

**Car "P"**—This to our knowledge is the heaviest and best constructed pallet car made.

It is used especially in Silica, magnesite, and fire brick work, as well as for other purposes, where great strength and rigidity is required.



CAR "F"

### SPECIFICATIONS:

Length over all, 5' 8 $\frac{1}{4}$ "	Width over all, 3' 6"	Height over all, 5' 8"
Standard distance between pallets, 4"	Standard length of pallets used, 2' 6 $\frac{1}{4}$ "	
Height from top of rail to top surface of first pallet angle with rigid bearings, 12 $\frac{1}{2}$ "		
Approximate shipping weight, 879 lbs.		

Same specifications apply with Universal Bearings.

NOTE—Height of car, number of pallet rests, and distance between pallets can be made special if required.

**Car "F"**—Car "F" is not only used in fire brick work, but in the drying of building brick, insulating brick, insulating boards, etc.

### SPECIFICATIONS:

Length over all, 6' 3"	Width over all, 3'	Height over all, 5' 8"
Standard distance between pallets, 4 $\frac{3}{4}$ "	Standard length of pallets taken by car, 34 $\frac{1}{4}$ "	
Height from rail to upper surface of first pallet angle, 13 $\frac{1}{2}$ "		
Approximate shipping weight, 445 lbs.		

NOTE—Distance between pallets and total height of car can be made special if required.



# INTERNATIONAL

Gas



Producers

MARCH 1918

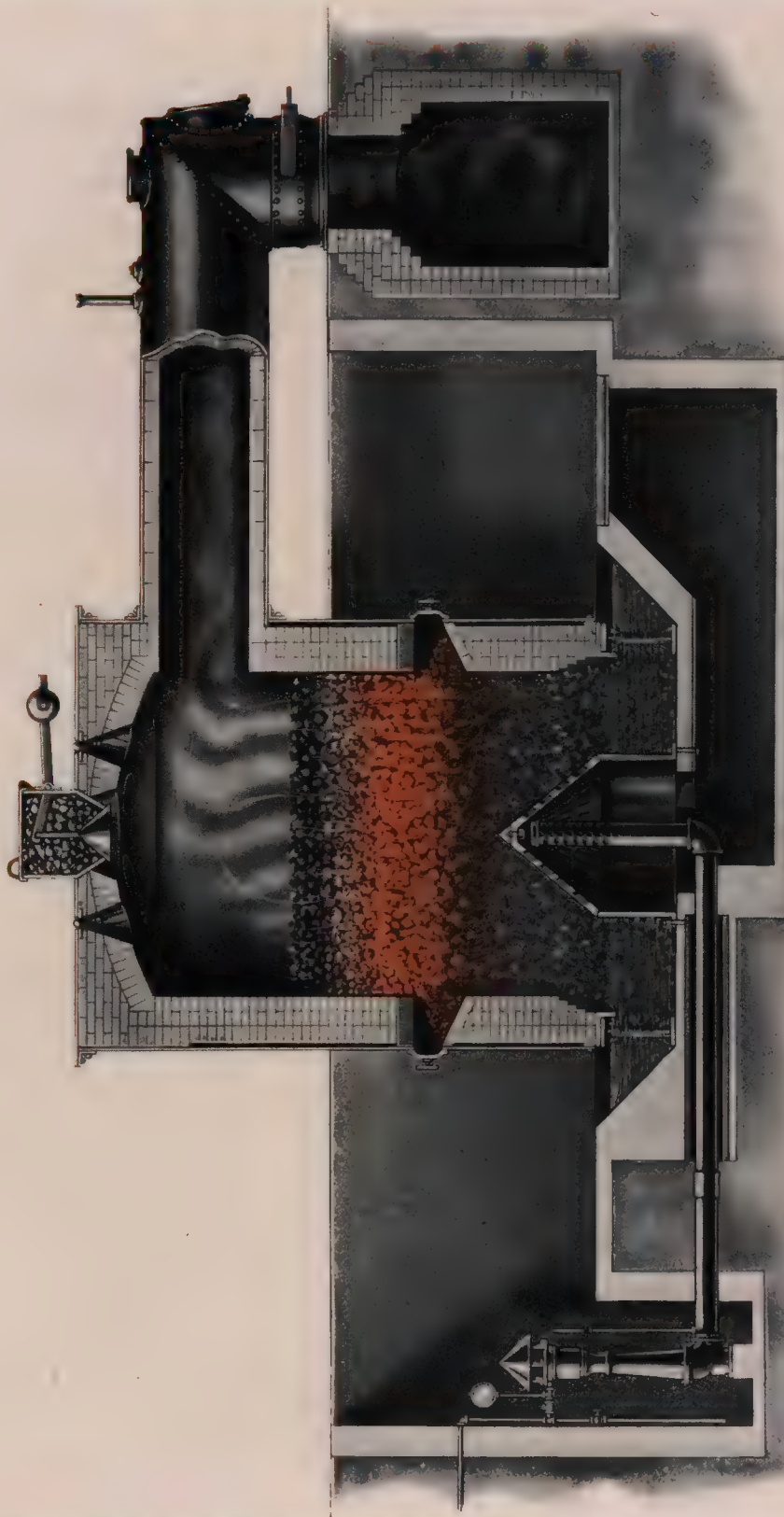
BULLETIN No. 126



A BATTERY OF INTERNATIONAL SIX FOOT PRODUCERS  
With Special Steel Water Pan Construction

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





International Type A Circular Pressure Gas Producer

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Type "A" Pressure Gas Producer

**T**HIS Producer has been designed with the idea of constructing a hand stoked producer, simple in operation, yet giving a gas, high in heating value, for use in direct furnace work.

### Ceramic Industry

International Producers have found special favor in the ceramic industry, there being more International Producers in this field than those of all other makes combined.

**Kilns:** It has been notably successful and has received its widest application in connection with Continuous Kiln practice.

Its use has found great favor in connection with scores of Continuous Kilns of the Compartment and Tunnel Type, having a moving zone of fire with stationary ware.

Further, adaption has been made to several types of kilns constructed on the principle that the fire zone is stationary, the ware moving through the fire zone on cars. These kilns are found in pottery, sanitary ware, fire brick, and other industries requiring annealing.



PROFESSORS PARMELEE AND HURSH  
Testing Efficiency of International Gas Producers

International Producers are furnishing high-grade gas for the burning of building brick, face brick, fire brick, paving block, drain tile, fireproofing, floor tile, wall tile, pottery, and sanitary ware.

**Dryers:** International Producers have further found a ready use in connection with the drying of clay products, furnishing gas to many Producer

Gas Fired Dryers, especially in this country and Canada.

**Miscellaneous:** International Producers can also well be used in the burning of lime, steel furnace work, in connection with glass furnaces, annealing and hardening furnaces. Furthermore, they are economical in the heating of rivets and forgings, in fact, all direct furnace work requiring a high B. T. U. gas.

**Principle of Design:** Operation is on the pressure principle, the Producer being of the updraft type with a steam jet blower that supplies steam and air to the combustion zone of the fuel bed. The reaction of the air and steam with the coal in the fuel bed of the producer, gives a mixed gas known as producer gas.



**Construction of Producer:** The Producer is composed of a steel shell supported by a cast iron ring base, which base is supported by cast iron columns rising from the ash pit.

The cast iron ring projects into the ash pit to the extent that when the pit is filled with water, a waterseal is produced.

The top of the producer, or cap, supports a hopper for the feeding of fuel, while the gas is taken off by a fire brick lined neck extending horizontally from the producer near the top.

The Producer shell is lined with fire brick and the top cap is made of fire brick block or standard shape brick.

The shell is fitted with side poke holes, peep holes, and clean out doors designed for minimum labor of operation.

**Hopper:** This is a simple charging mechanism of the double door type. The fuel is placed in the hopper, the top door closed and the conically shaped bell or bottom door dropped. The shape of the bottom door causes uniform distribution of the fuel.

The hopper is proportioned with the idea of holding sufficient coal for a certain operating period. This makes the charging operation more mechanical.

Notice that little gas can escape, owing to the closing of the top door before the bell is dropped.

**Blower:** This is one of the most efficient manufactured. It has an air adjustment rarely found in other blowers. This adjustment in connection with the steam adjustment, permits an accurate proportioning of the air and steam entering the producer.



Dryer Fired by International Gas Producers





A Battery of International Producers

**Tuyere or Grates:** The more even the distribution of the blast in the fuel bed, the better the gas and the more efficient the operation.

International tuyeres are of the conical grate type and much of the efficiency of the producers as shown in successive tests, is due to the design of the grates.

**Ease of Operation:** We believe that we can truthfully say that an International Producer will handle clinkering fuels in a better shape than any other hand stoked producer on the market.

This is due in a great measure to the fact that the side walls are straight. In reality they recede slightly outward in the ash pit, differing from those producers having their side walls drawn in at the bottom. Straight side walls do not choke the clinker exit in a manner accomplished by a drawn-in side wall.

**Gas Downtakes:** The cuts in this bulletin show the producer fitted with an "L" connection for attachment to an underground gas flue. Notice that it is well lined and supplied with suitable dampers, cleanout doors and explosion doors.

Notice further that this downtake is arranged for gas analysis and a pyrometric couple.

**Fuel Handling Equipment:** It is always recommended that whenever possible, fuel be brought to the charging floors or producer hopper by mechanical means. In some cases ash conveyors are a great assistance.



International Producers in Connection with Gypsum Industry



### Gas Analysis

International Producers, through great uniformity in blast conditions, produce a rich gas, which with some fuels has attained as high as 17% hydrogen and 24% carbon monoxide in composition.

A recent test of a fairly medium, high ash Virginia coal of 12794 B.T.U. gave the following analysis:

Carbon dioxide (CO <sub>2</sub> ).....	4.55
Ethylene (C <sub>2</sub> H <sub>4</sub> ).....	.65
Oxygen (O <sub>2</sub> ).....	.50
Carbon monoxide (CO).....	21.30
Hydrogen (H <sub>2</sub> ).....	10.12
Methane (CH <sub>4</sub> ).....	1.05
Nitrogen (N <sub>2</sub> ).....	61.83
B. T. U. per cubic foot.....	130
Temperature of the gas in the producer neck.....	1346°
Coal gasified per sq. ft. of grate surface per hour.....	11.04 lbs.
Cubic feet of dry gas per pound of coal.....	78.4

Fuels of a higher heating value with less ash, less moisture, and less sulphur, will give a better gas. Poorer fuels than the above noted fuel will give a less rich gas.

### Efficiency

The efficiency of International Producers is remarkable.

A test recently made by Professors Hursh and Parmelee on a battery of



Gas Fired Continuous Kiln Supplied with International Producers

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



International 6 ft. producers with a fuel containing over 10% ash and over 1% sulphur, shows the following results:

Calorific value per lb. of coal.....	12,794 B. T. U.
Heat in steam per lb. of coal.....	236 B. T. U.
Heat in air per lb. of coal.....	22 B. T. U.
Total heat.....	13,052 B. T. U.

Calorific value of the gas per lb. of coal.	10,445 B. T. U.
Sensible heat of the wet gas.....	1,278 B. T. U.
Unburned carbon in the ashes.....	50 B. T. U.
Conduction and radiation.....	1,279 B. T. U.
	13,052 B. T. U.

**Efficiency of Producer Operation... 89.8%**



ERECTION VIEW OF INTERNATIONAL GAS PRODUCER  
For Burning of Pottery in a Railroad Tunnel Kiln

An efficiency of 89.8% in ordinary operation with only 0.4% loss of carbon in the ash, is very uncommon operation, and shows without question that International Producers are of high efficiency.

### Sizes

International Producers are made in 6 ft., 7 ft., 8 ft., 9 ft., and 10 ft. sizes.

(Sizes refer to internal diameters.)

Where conditions permit, we especially advocate the installation of the smaller sizes, such as 6 ft. and 7 ft. Experience has taught us that the smaller diameter producers are operated more easily and with less labor on poor grades of fuel than are the larger sizes. Furthermore, the above two sizes can be pushed to a greater overload capacity in proportion to their diameters than can the larger sizes.



Producer House and Gas Downtakes for Continuous Kiln



### Producer Gas Data

Fifteen pounds of fair grade Pittsburgh coal efficiently gasified, approximates in heating value, one gallon of fuel oil.

One hundred pounds of fair grade Pittsburgh coal efficiently gasified, approximates 1,000 cubic feet of average natural gas.

B. T. U. of producer gas per cubic foot varies from 100 to 170, the exact value depending on the fuel used and the conditions under which the gas is made.

One pound of coal gasified in a producer gives from 60 to 100 cu. ft. of gas.

The gasification of 1 ton of average coal per 24 hours, requires approximately 1 boiler horse power of steam for the blower; for example, a gasification of 3 tons of coal in a 6 ft. producer in 24 hours, would take approximately 3 boiler horse power.

The temperature of the producer gas in the neck of the producer for best operation with continuous kilns approximates 900 to 1100 deg. F.

Tests of several days' duration on a battery of four (4) International 6 ft. Producers, show a remarkable constancy from day to day in the composition of the gas produced.

#### Capacities of International Pressure Producers

Diameter	Grate Area	Capacity per 24 hours, tons of bituminous coal
6 ft.	28.27	2½ to 4½
7 ft.	38.48	3½ to 6½
8 ft.	50.26	4½ to 8½
9 ft.	63.60	5½ to 10½
10 ft.	78.54	6½ to 12

### International Type "B" Rectangular Suction Gas Producers

There being some call for a Rectangular Producer of the Suction Type to operate under certain special conditions, such as exceedingly poor labor supply, and in operations where high efficiency is not required, we have designed a Rectangular Suction Producer very simple in construction.

This Producer is provided with a water back steam generator, steam injector, hopper and bell feed. It is self-contained, and does not require a special boiler to furnish it with steam, as does the pressure type.



International Rectangular Suction Type Producers

Quite a number of International Rectangular Producers are now in satisfactory use in the ceramic industry.

#### Sizes and Capacities of International Suction Producers, Type "B"

Size	Grate Area	Capacity per 24 hours, tons of bituminous coal
6 ft. 9 in. x 11 ft.	70 sq. ft.	4 to 8
6 ft. 9 in. x 16 ft.	100 sq. ft.	7 to 12
6 ft. 9 in. x 21 ft.	130 sq. ft.	10 to 17



# INTERNATIONAL

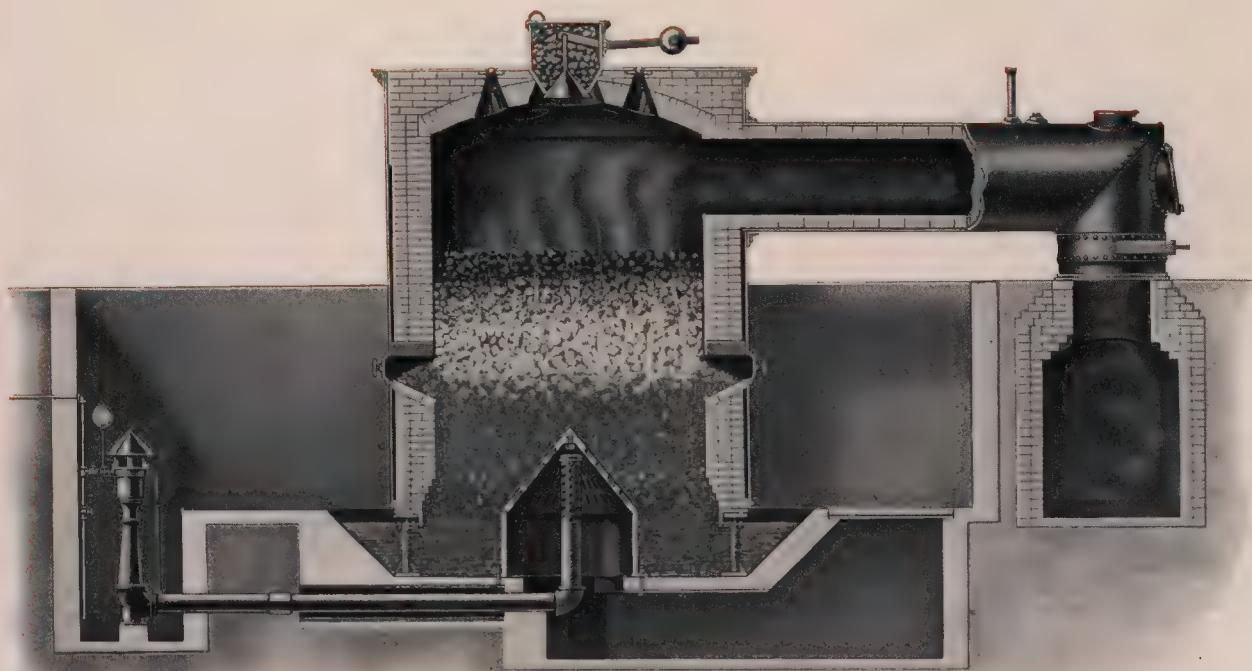
Producer Gas Fired



Metallic Radiation Dryer

APRIL 1918

BULLETIN No. 129



International Type A Pressure Gas Producer

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.





International Producer Gas Fired Metallic Radiation Dryer



**T**HIS type of dryer we believe will dry clay products more efficiently and at less cost than any other type of dryer now used in the industry.

Direct fired dryers using coal as a fuel, have from 4 to 8 times as much air passing through the grates, as is needed to burn the coal.

This amount of air is necessary for the fuel when it is first thrown on the grates, but as the fire assumes a coking condition, the air supply is far in excess of that needed.

Producer gas on the other hand can be burned with from  $1\frac{1}{2}$  to 2 times the amount of air needed to combust the fuel.

Again, an International Producer Gas Fired Dryer is so arranged as to preheat the air for combustion, producer gas burning best with preheated air.

Thus a great saving in fuel is brought about through this type of dryer needing less air for combustion, saving the heating up of from 2 to 3 times as much air as is necessary to combust the fuel in direct fired furnaces.

The successful drying of clay ware depends entirely on the atmospheric conditions in the tunnels holding the ware.

When a tender clay, made up into brick, tile or hollow-ware, is placed in a warm, dry atmosphere, it will invariably check.

This is due to the fact that the quick drying of the outside of the ware causes uneven shrinking conditions.

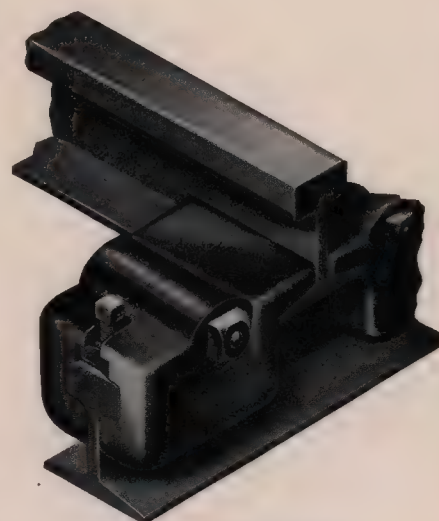
On the other hand if a tender clay is heated up thoroughly in an atmosphere near the point of saturation before any drying takes place, the temperature then can be gradually raised and drying carried on without serious injury to the ware, for as one might say, the ware dries from the inside first.

The air inlets and outlets of the gas fired dryer are adjustable to the extent that practically any atmospheric condition required can be obtained in the tunnel, practically any condition from saturation at the receiving end to an almost uniform temperature from end to end of each tunnel.

The gas fired dryer is so designed as to cause the dryer car to practically fill the tunnel with the exception of an open space under the cars.

The tendency of hot air in a tunnel is to rise to the top, and if it does, it is almost impossible to get it down again before it leaves.

International Dryers are provided with an air space below the cars. The air for drying runs along in the tunnel under the cars, and as its natural tendency is to rise, it gradually percolates up through the ware, drying uniformly and efficiently.



INTERNATIONAL  
RAIL CLAMP





Clays containing salts of lime, etc., tend to scum when they come into contact with sulphur gases in the presence of water.

The Gas Fired Dryer passes its gases of combustion through a flue under the track, the smoke having no chance to bathe the ware. It is, therefore, impossible in an International Producer Gas Fired Dryer to scum the products, or rapidly deteriorate steel cars.

The flue through which the products of combustion and the heat pass is covered for part of its length with thin cast iron radiators. This adds greatly to the efficiency of the dryer as cast iron has a radiating power of about 180 compared with that of brick.

Note the chimney construction of the dryer. Owing to the combustion gases entering the stack in a separate flue from the water-laden tunnel air, the stack is always hot, producing practically any legitimate draft required.

International Dryers, therefore, require no fans. Remember that a 12' fan working against  $\frac{3}{4}$  oz. pressure requires approximately 50 H. P. to drive it and must be operated continually for 24 hours a day.

With gas for fuel it is easier to maintain uniform heat conditions within the tunnels as the operation is almost mechanical. In fact this dryer has so many exclusive features that it is being used with remarkable success in the plaster board, gypsum and other industries.

International Dryers, being built entirely of brick and iron, require no insurance.

To sum it up, the International Producer Gas Fired Dryer excels in:

- |   |   |
|---|---|
| 1. Economy in fuel cost.  | 6. Has a small maintenance cost.                                      |
| 2. Ability to thoroughly control the atmospheric conditions in the tunnels. | 7. Its initial cost is not excessive.                                 |
| 3. It does not scum.  | 8. It is more uniform in operation.                                   |
| 4. It is not hard on cars.  | 9. It requires no insurance.  |
| 5. It requires no fan.  | 10. Does away to the greatest possible extent with the human element. |

Where is there another modern dryer so fitted for your work?

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

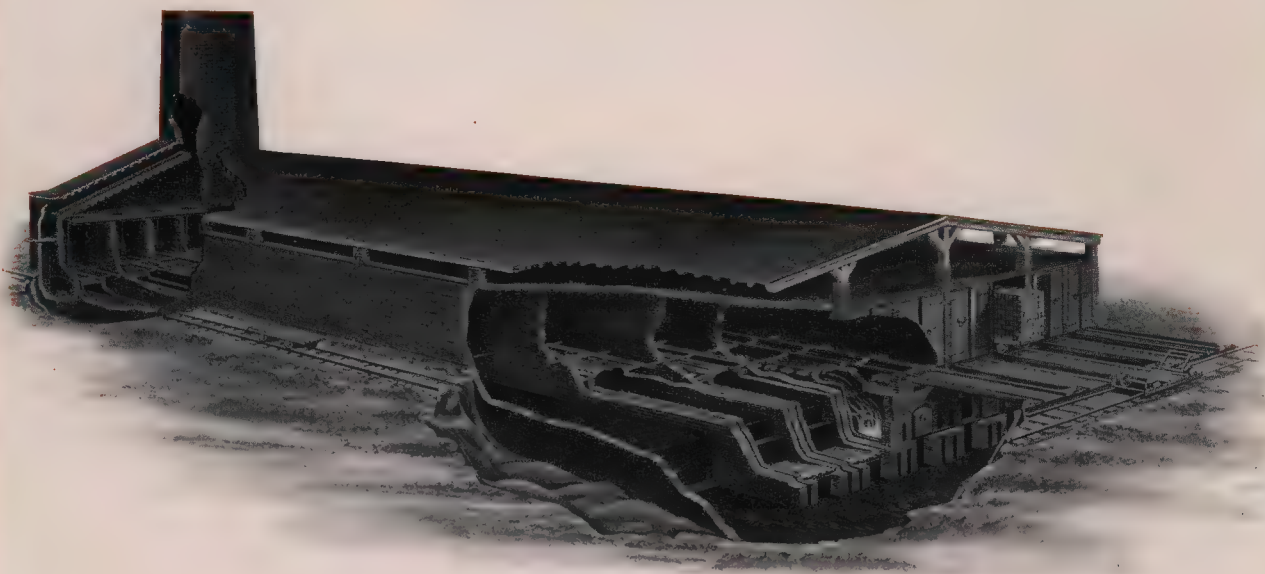
Metallic Radiation



Dryer

APRIL 1918

BULLETIN No. 130



**International Metallic Radiation Dryer**

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.

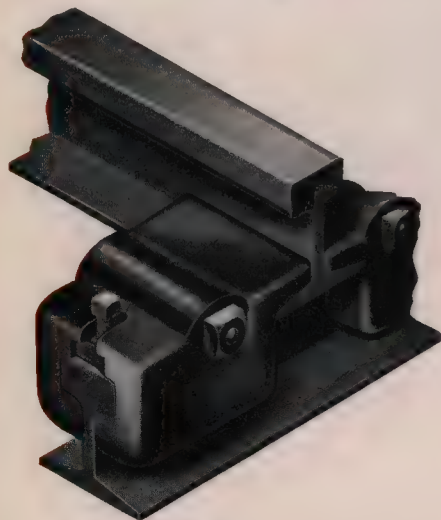


Economy in fuel has been the reason for the design of International Metallic Radiation Dryers.

They are designed to burn fuel direct in furnaces, one under each tunnel, coal, oil, gas, wood, or even coal dust being used as the burning agents.

This Dryer differs from the International Radiated Heat Dryer in that the flue under the track carrying the products of combustion to the stack, is roofed over for a portion of its length with cast iron radiators. These radiators are made in sections and sealed at the joints by means of asbestos cord.

The metal covered smoke flue has about 180 to 200 times the heat conducting power of a brick flue, so the Metallic Radiation Dryer is especially fitted for the drying of those clay products that will stand medium or rapid drying. At the same time, by carrying a slight fuel bed in the furnaces, tender clays can be dried with great economy.



INTERNATIONAL RAIL CLAMP

Practically every other type of dryer on the market, with the exception possibly of some of the old type of steam dryers, requires fans for operation.

Owing to the peculiar construction of our stack, the waste combustion gases from the smoke flue are syphoned into the stack before they mingle with the water laden air, thus producing a good draft, saving the use of a fan.

A furnace is situated under the discharge end of each tunnel. The products of combustion pass through a flue under the track into the cross flue feeding the stack, the combustion gases at no point being admitted to the ware.

This does away with the unsightly scum which is the product of many types of dryers including waste heat and other direct fired types and at the same time has no tendency to rapidly deteriorate cars.

The dryer is entirely built of brick and iron, requiring no insurance. The ties on which rest the trackage are made up of T rail, which rail extends from one side of the dryer to the other, it being imbedded in the dryer walls. This produces a uniform system of trackage throughout the entire dryer, each track always remaining in its original alignment.

The trackage is held firmly to the cross ties by means of rail clamps, which rail clamps are so constructed as not to allow spreading of the rails. The flues under the trackage carrying the combustion gases are built independent of the tunnel walls, the space around these flues being utilized for air ducts.

The dryer is designed with a very small air space between the cars when full of ware and the sides of the tunnel, the exception being that a large air space is allowed under the tracks.

This causes the hot air to pass toward the exit end under the cars, and as the natural tendency of hot air is to rise, it gradually percolates up through the ware.

Most dryers do not have this large opening under the cars, and the hot air rises quickly to the top of the tunnel, passes along the top to the exits without passing through the ware.

International Dryers, therefore, dry more economically and with greater evenness on this account.

The secret of the drying of tender clays is a perfect control of the atmospheric conditions in the tunnels, the best results being obtained by a hot moist atmosphere as the ware enters, which ware is gradually heated up as it progresses down the tunnel, it obtaining a maximum heat just before it is discharged.

International Dryers are so well regulated as to the amount of air entering and leaving the tunnel that practically any atmospheric condition, running from a complete saturation at the receiving end to a velocity of several hundred feet a minute at the same end can be obtained.

International Metallic Radiation Dryers are the final step in the drying of clay ware by the direct application of heat.



INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

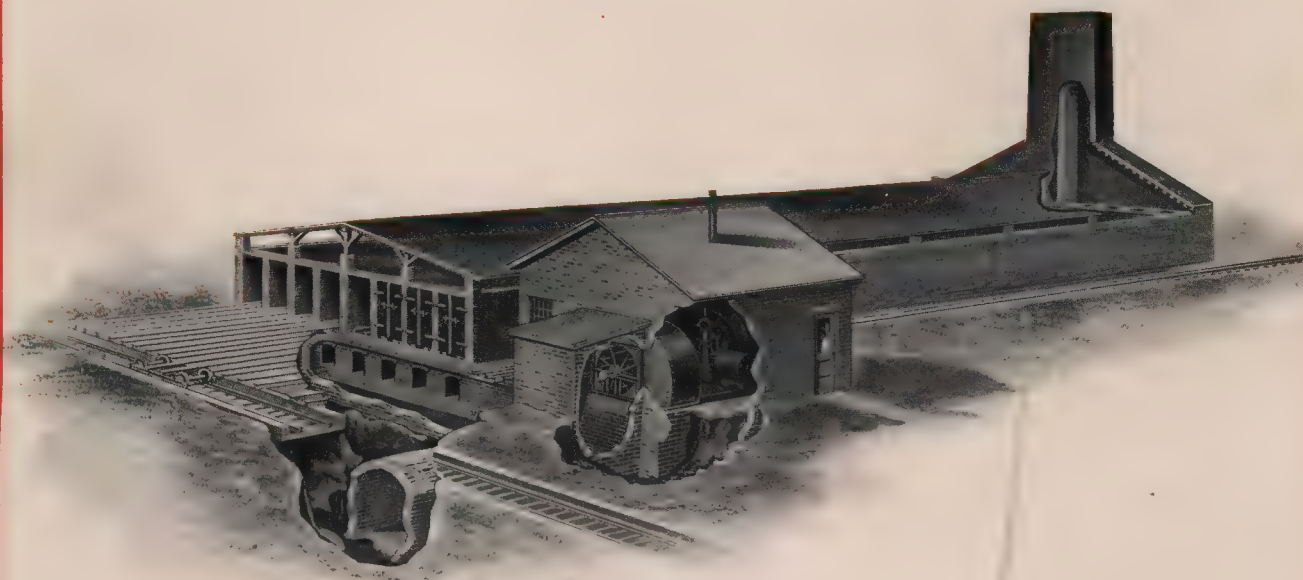
Waste Heat



Dryers

DECEMBER 1917

BULLETIN No. 131



Sectional View  
International Waste Heat Dryer

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



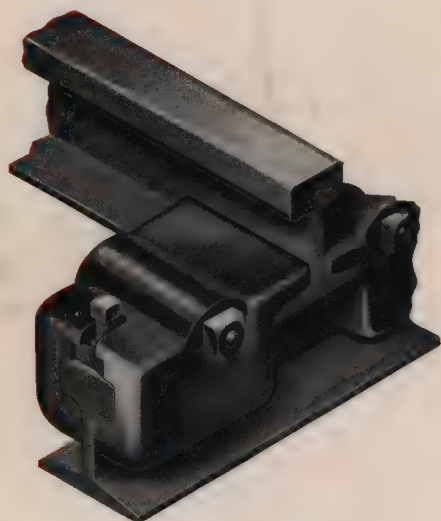
**M**ANY large plants making a product unaffected by scum and burning in not less than 8 to 10 periodical kilns can use a Waste Heat Dryer with economy.

An International Waste Heat Dryer requires but one fan, thus saving considerable on your power bill.

"Why but one fan?" you ask—

The dryer is built to fit the car when fully loaded, with minimum space between the top and sides of the car and tunnel.

The air is caused to circulate freely under the cars by means of an air space under the track running the length of the tunnel.



INTERNATIONAL  
RAIL CLAMP

The tendency of hot air is to rise. As the air runs along underneath the car, it percolates up through the brick, not rising immediately to the top of the tunnel as in many dryers without this air space.

The hot air enters the tunnel through suitable perforations in the top of the flue, which flue runs the entire length of the tunnel under the track. This flue under the track is baffled off, slightly past the middle of the tunnel.

This tends to force most of the hot air through the perforations into the tunnel proper, where it mingles with the brick, but at the same time a small portion of it runs to the extreme end of the flue where it enters the stack causing a good draft, thus saving the use of a disc exhaust fan.

Dampers in the hot air flues and in the stack allow a perfect control of temperature and the atmospheric conditions in the tunnels themselves.

Where is another type of Waste Heat Dryer so simple and economical?



# INTERNATIONAL

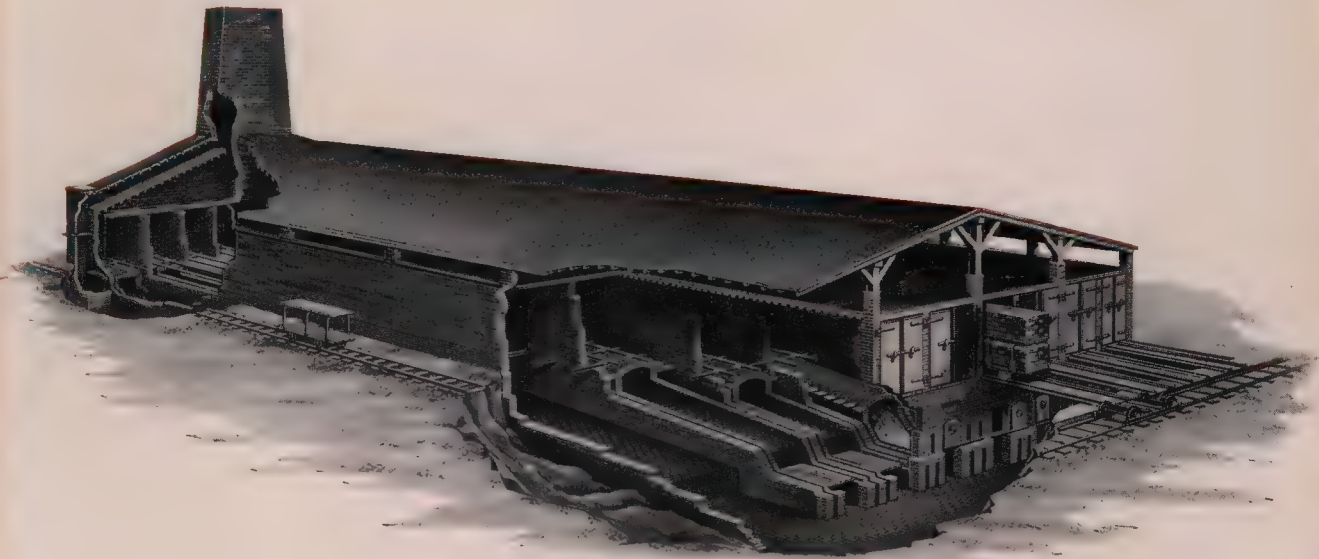
Radiated



Heat Dryers

JANUARY 1918

BULLETIN No. 132



International Eight Tunnel  
Radiated Heat Dryer

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



**I**NTERNATIONAL Radiated Heat Dryers are designed to burn fuel direct in furnaces, one under each tunnel, coal, oil, gas, wood, or even coal dust being used as a fuel.

The Dryer is designed with a very small air space between the cars when full of ware and the sides of the tunnel, the exception being that a large air space is allowed under the tracks.

This causes the hot air to pass towards the exit end under the cars, and as the natural tendency of hot air is to rise, it gradually percolates up through the ware.

Most Dryers do not have this large opening under the cars, and the hot air rises quickly to the top of the tunnel and passes along the top to the exits, without passing through the ware.

International Dryers, therefore, dry more economically and with greater evenness on this account.

Practically every other type of dryer on the market with the exception possibly of some of the old types of steam dryers requires fans for operation.

Owing to the peculiar construction of our stack, the waste combustion gases from the smoke flue are syphoned into the stack before they mingle with the water laden air, thus producing a good draft and saving the use of a fan.

A furnace is situated under the discharge end of each tunnel. The products of combustion pass through a flue under the track into the cross flue feeding the stack, the combustion gases at no point being admitted to the ware.

This does away with the unsightly scum which is the product of many types of dryers including waste heat and many other direct fired types, and at the same time has no tendency to rapidly deteriorate cars.

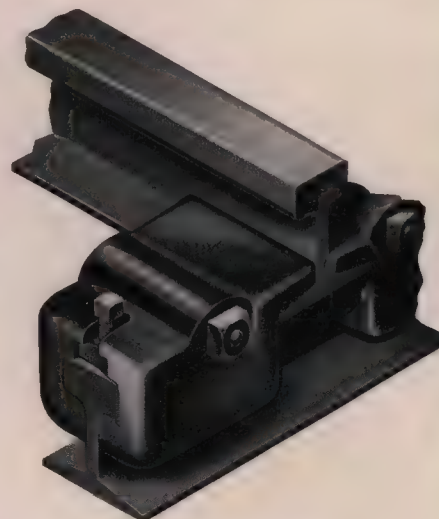
The Dryer is entirely built of brick and iron, requiring no insurance. The ties on which rest the trackage are made up of T rail, which rail extends from one side of the dryer to the other, it being imbedded in the dryer walls. This produces a uniform system of trackage throughout the entire dryer, each track always remaining in its original alignment.

The trackage is held firmly to the cross ties by means of rail clamps, which rail clamps are so constructed as not to allow spreading of the rails. The flues under the trackage carrying the combustion gases are built independent of the tunnel walls, the space around these flues being utilized for air ducts.

The secret of the drying of tender clays is a perfect control of atmospheric conditions in the tunnels, the best results being obtained by a hot moist atmosphere as the ware enters, which ware is gradually heated up as it progresses down the tunnel, it obtaining a maximum heat just before it is discharged.

International Dryers are so well regulated as to the amount of air entering and leaving the tunnel that practically any atmospheric condition, running from a complete saturation at the receiving end to a velocity of several hundred feet a minute at the same end, can be obtained.

For the drying of tender clays and those that tend to scum in a dryer and for general use on small, medium and large plants, International Radiated Heat Dryers are a most valuable adjunct.



**INTERNATIONAL  
RAIL CLAMP**





# INTERNATIONAL

Round Down



Draft Kilns

NOVEMBER 1917

BULLETIN No. 176



International Round Kiln

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



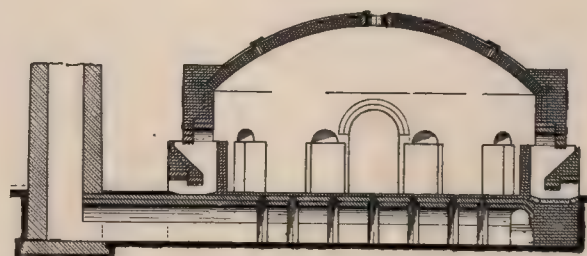
THE salient feature of International Round Kilns is the excellent flue and floor design, which design invariably determines the success of a Down Draft Kiln.

The floor system consists of an outside circular flue connecting by means of transverse flues, to the large central flue leading to the stack.

This type of floor system allows the draft to spread itself equally over the kiln, all of which is conducive to good burning.

Many of the installations are put in without grate bars, using the dead bottom fire box, although grate bars of the sloping type can be fitted to the kiln if desired.

The standard iron work used consists of bands, door frames, eyes, hooks, turnbuckles, Tectonious lugs, and where grates are used, bearing bars and grate bars.



CROSS SECTION SHOWING FLUES AND FIRE BOXES

## SPECIFICATIONS

Internal Diameter	Approximate Holding Capacity Building Brick	Approximate Number Fire Brick Required	Approximate Number Building Brick Required
24 ft.	50,000	20,000	71,500
26 ft.	62,000	22,000	87,700
28 ft.	73,000	24,000	106,400
30 ft.	85,000	26,000	120,000
32 ft.	95,000	28,000	136,000

Ironwork is also furnished on specification for all types of Round and Rectangular Kilns.

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



# INTERNATIONAL

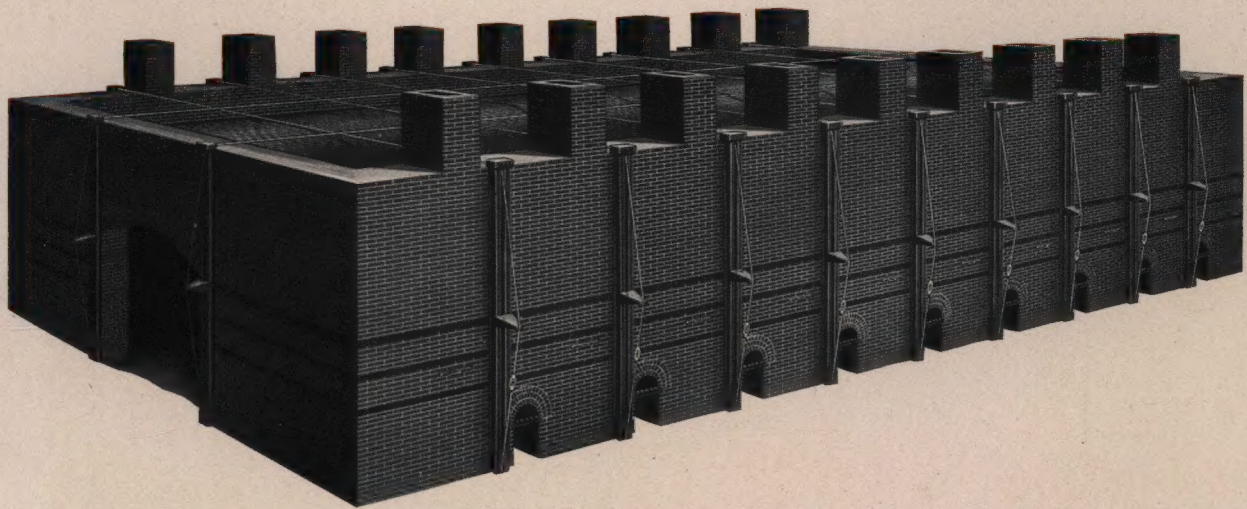
Rectangular Down Draft Kilns



Kiln Supplies

FEBRUARY 1918

BULLETIN No. 177



INTERNATIONAL RECTANGULAR DOWN DRAFT KILN

INTERNATIONAL CLAY MACHINERY COMPANY, DAYTON, OHIO, U. S. A.



## International Rectangular Down Draft Kilns

SOME MANUFACTURERS of paving block, face brick, fire brick, and other clay products prefer the rectangular type of kiln to the beehive or tunnel type. International Rectangular Kilns are built in several sizes, the 9 and 10 arch being the most popular.

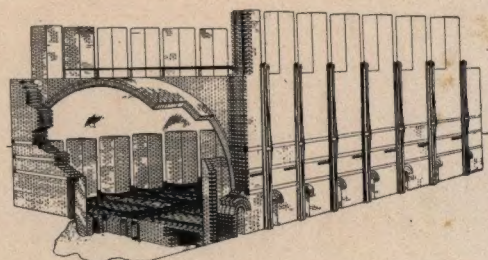
The kiln is of the multiple stack type, each furnace having its individual flash wall.

The path of the hot gases from the flash wall to the crown is down through the ware to a flue underneath of the floor, which flue is in line with the fire box and the individual stack at the opposite side of the kiln from the fire box.

Thus each fire box has its individual draft and each stack its individual control, all of which allows each arch of the kiln to be controlled directly and individually.

Detailed working plans, specifications, and ironwork consisting of I beam buckstays, I beam caps, spreaders, dampers, damper guides, tie-rods, turnbuckles, top bearing bars, bottom bars and grate bars, are furnished for the construction of the kiln.

Weight of the ironwork, and amount of building material required for various sizes of kilns will be furnished on request.



INTERIOR SECTION RECTANGULAR KILN

### Kiln Supplies

Kiln and dryer doors, bearing bars and grate bars, in fact all special kiln ironwork is furnished by us.

A few styles of kiln doors along with standard grate bars are shown.



**No. 5 Kiln Door** (used mostly with wood-burning). Opening 12" x 20". Weight, door complete, approximately 80 lbs.

**No. 10 Kiln Door.** Size of door, 16" x 18". Approximate total weight with slide, 85 lbs.

**No. 15 Kiln Door.** Opening 12" x 14". Weight with liner, approximately 60 lbs. Weight without liner, approximately 50 lbs.

**No. 20 Kiln Door.** Opening 12" x 14". Weight with liner, approximately 50 lbs. Weight without liner, approximately 35 lbs.

It is preferable that liners be furnished with both No. 15 and No. 20 doors.

### Standard Grate Bars

3' long x 2½" wide. Approximate shipping weight, 26 lbs.

3' 6" long x 2¼" wide. Approximate shipping weight, 30 lbs.

4' long x 2½" wide. Approximate shipping weight, 35 lbs.









